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Gastric histopathology by Helicobacter pylori cagA status in Arctic Canada

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Background: Our community-driven projects address concerns of Canadian Arctic Indigenous communities about *Helicobacter pylori* (*Hp*) infection, responsible for elevated gastric cancer mortality in the region. Community research partners wished to learn whether bacterial characteristics determine severity of *Hp*-related disease in their communities. We aimed to describe gastric histopathology by *cagA* genotype of *Hp* isolated from residents of 7 Indigenous communities in the Northwest Territories and Yukon.

Methods: Participants underwent gastroscopy with 5-6 biopsies taken for histopathological assessment and 2 biopsies taken for tissue culture during 2008-2017. We used multiple PCR reactions and DNA sequence analysis to classify *Hp* genotypes as *cagA*+ or *cagA*-. A single pathologist used the updated Sydney classification system to grade severity of 5 gastric pathology outcomes: *Hp* density; chronic gastritis; active gastritis; atrophy; and intestinal metaplasia. We estimated prevalence of each outcome with 95% confidence intervals (CI) by gastric subsite and *cagA* status.

Results: Of 262 *Hp* isolates assessed, 142 (54%) were *cagA*+. Prevalence of moderate-high *Hp* density, severe chronic gastritis, moderate-severe active gastritis, atrophy, and metaplasia were (%[CI]): respectively, 78[70-85], 44[36-53], 65[56-72], 55[46-63], 25[18-33] in *cagA*+ participants and 61[52-70], 35[27-44], 31[23-40], 32[23-41], 8[4-15] in *cagA*- participants. *cagA*+ participants had higher prevalence of all outcomes in antrum and corpus.

Conclusion: *Hp*-infected Indigenous residents of Arctic Canada who harbored *cagA*-positive strains had higher prevalence of more severe gastric pathology than those with *cagA*-negative strains.

Key messages: Community-driven research answers questions posed by those who bear the disease burden.