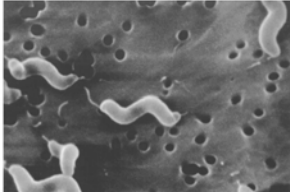



## Group 11 – Campylobacter & Helicobacter

	<b>Campylobacter</b>	<b>Helicobacter</b>
		
<b>Classification</b>	<p><i>Domain:</i> Bacteria  <i>Kingdom:</i> Proteobacteria  <i>Class:</i> Epsilonproteobacteria  <i>Order:</i> Campylobacterales  <i>Family:</i> Campylobacteraceae</p>	<p><i>Domain:</i> Bacteria  <i>Kingdom:</i> Proteobacteria,  <i>Class:</i> Epsilonproteobacteria  <i>Order:</i> Campylobacterales  <i>Family:</i> Helicobacteraceae</p>
<b>Genus and Species</b>	<i>C. jejuni</i> , <i>C. fetus</i> , <i>C. coli</i> , <i>C. lardis</i>	<i>H. pylori</i> , <i>H. cinaedi</i> , <i>H. fennelliae</i>
<b>Characteristics</b>	<p><b>Gram-negative spiral rod</b></p> <ul style="list-style-type: none"> <li>• motile</li> <li>• microaerophilic</li> <li>• non-fermenting</li> <li>• <b>single or bipolar unsheathed flagellum</b> – facilitate penetration and colonization of mucosal environments</li> <li>• cannot tolerate drying and killed by O<sub>2</sub></li> </ul>	<p><b>Gram-negative spiral rod</b></p> <ul style="list-style-type: none"> <li>• motile</li> <li>• microaerophilic</li> <li>• <b>multiple sheathed flagella</b></li> <li>• urease production</li> </ul>
<b>Mode of transmission</b>	<p><b>Reservoir: wild/domestic animals (poultry)</b></p> <ul style="list-style-type: none"> <li>• transmission via contaminated food/water</li> </ul>	<p><b>No known non-human reservoir</b></p> <ul style="list-style-type: none"> <li>• unknown transmission – possible fecal-oral, dental plaque, saliva (good oral hygiene helps reduce risk)</li> </ul>
<b>Risk Factors</b>	<ul style="list-style-type: none"> <li>• <b>infants, young adults</b> especially in developing countries</li> <li>• immunocompromised patients</li> </ul>	<ul style="list-style-type: none"> <li>• <b>1/3 global population infected</b></li> <li>• prevalence increases with age, and in developing countries</li> <li>• lower socioeconomic groups are at increased risk.</li> </ul>
<b>Infections/Diseases</b>	<ul style="list-style-type: none"> <li>• <b>acute gastroenteritis</b> with bloody diarrhea, high fever, nausea, abdominal cramps, vomiting (2-5 days after exposure)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>acute/chronic superficial gastritis</b>; if acute: vomiting/upper GI pain, hypochlorhydria; if chronic: asymptomatic</li> <li>• <b>gastric (80%) and duodenal (90%) ulcers</b></li> <li>• may lead to gastric carcinoma, MALT-lymphoma</li> </ul>
<b>Pathogenesis</b>	<ul style="list-style-type: none"> <li>• verotoxin; enterotoxin</li> <li>• exudative/hemorrhagic inflammation in small and large intestines</li> <li>• invade mucosal surfaces of the jejunum, ileum, and colon</li> </ul>	<ul style="list-style-type: none"> <li>• sits in mucus layer of stomach, protected against gastric acid</li> <li>• produces urease (⇒ ammonia)</li> <li>• high motility</li> </ul>
<b>Diagnosis</b>	<ul style="list-style-type: none"> <li>• stool samples – culture and biochemical analysis</li> </ul>	<ul style="list-style-type: none"> <li>• gastric biopsy, smears, culture and biochemical tests</li> <li>• breath test – release of radiolabelled Carbon dioxide (product of Urea-C<sup>14</sup> metabolism) – [94%-98% specific/sensitive]</li> <li>• blood test (Serologic IgG antibody)</li> </ul>