10156- U.S.-Mexico Cohort Study of *Helicobacter pylori* infection in Children.

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Helicobacter pylori infection is common at early ages in settings where household crowding and poor sanitation are common; persistence of this infection leads to chronic digestive diseases in adults. The Pasitos Cohort Study follows children from El Paso, Texas, USA and Ciudad Juarez, Mexico at 6-month intervals to identify predictors of acquisition and persistence of *H.pylori* infection. Pregnant women were recruited from El Paso WIC clinics and Mexican Social Security Institute maternal-child clinics in Juarez from April 1998 to October 2000. The seroprevalence of *H.pylori* at baseline was 74% in Juarez mothers and 56% in El Paso mothers. Follow-up of Pasitos Cohort children is ongoing. Active *H.pylori* infection is detected in children by the 13C-urea breath test; results are corrected for body-size-dependent metabolic variation using Klein's method. This analysis presents descriptive results for two years of follow-up; 350, 295, 196, and 153 infants had breath tests around 6, 12, 18, and 24 months of age, respectively; *H.pylori* prevalence was 0.07 [95% confidence interval (CI), 0.05-0.10], 0.14, [0.11-0.19], 0.17 [0.12-0.23], and 0.20 [0.14-0.27] for these four ages, respectively. The total follow-up time was 6181 person-months; 108 infants had one or more positive breath tests, thus the incidence rate of first detectable infections was 0.21/year [95% CI, 0.17-0.25]. Incidence rates for subgroups: Juarez infants, 44 / 2260 person-months = 0.23/year [0.16-0.30]; El Paso infants, 64 / 3921 person-months = 0.20/year [0.15-0.24]; boys, 49 / 2976 person-months = 0.20/year [0.14-0.25]; girls, 59 / 3205 person-months = 0.22/year [0.16-0.28]; first year of age, 66 / 4243 person-months = 0.19/year [0.14-0.23]; second year of age, 31 / 1340 person-months = 0.28/year [0.18-0.38].

10234- Norwalk-Like Virus Outbreak on the Appalachian Trail

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Background: The 2,500 men and women who attempt to backpack the Appalachian Trail each year face a number of challenges posed by weather, terrain and insect or animal vectors. The most common health problems reported by avid hikers include musculoskeletal injuries and gastrointestinal illnesses. Limited sanitation facilities and water supplies on long-distance trails can increase the risk of gastroenteritis among hikers. The purpose of this investigation was to determine the source, extent and the agent responsible for an outbreak acute gastrointestinal illness among long-distance hikers on the Appalachian Trail in Virginia in May and June 1999.

Methods: After reports of illness to the local health department by several hikers, 70 hikers were intercepted and interviewed at a highway crossing near the Appalachian Trail. A questionnaire solicited information on date of onset, duration and characteristics of symptoms, on foods consumed at a general store frequented by the hikers and a popular all-you-can-eat restaurant, and on sources and amounts of water consumed from May 1st to June 20, 1999. All contacted hikers participated. Water samples collected from the store, several nearby buildings and the restaurant were tested for common enteric pathogens. Stool samples and acute and convalescent serum samples were collected from six hikers.

Results: Forty-five hikers (64%) reported symptoms consistent with Norwalk-like virus and laboratory diagnoses detected Norwalk-like viruses in stool specimens and Norwalk-like virus antibodies in serum specimens. Persons who consumed food items prepared at

the general store were almost twice as likely to become ill as persons who did not (RR=1.8, 95% CI 1.0-3.2). Camping overnight at the general store was also associated with illness (RR=1.5, 95% CI 1.0-2.1). Environmental sampling of water from the taps inside and outside a general store and from other town establishments found fecal coliform bacteria contamination, but not Norwalk-like virus.

Conclusion: Despite positive results from testing for coliform bacteria, the general store could not be implicated as the point source of this outbreak. Given that cases of illness occurred during the month prior to the peak of the outbreak, the extremely infectious nature of Norwalk-like virus infection and the opportunity presented by the gathering of hikers at the general store, person-to-person transmission was the most likely source of this outbreak. Poor sanitation, scarce water supplies, and crowding can increase the risk of gastrointestinal illness among long-distance hikers; and in this setting, traditional public health methods to reduce the risk of infectious disease are difficult to apply. While hikers should be aware that not all water sources in towns are free from contamination, it is also important that public water supplies continue to receive routine inspection and sampling.

10326- Water Consumption and Gastrointestinal Symptom Recall -- The SSEED Study

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The Seattle-Spokane Enteric Epidemiologic Disease Study (SSEEDS) was conducted by the U.S. Environmental Protection Agency and the Lovelace Clinic Foundation. The primary study question was a comparison of the reported rates of gastrointestinal disease symptoms (soft or liquid stools, vomiting, nausea etc.) within a cohort of Washington families in Seattle before and after installation of a new public water treatment plant as compared to other families in Seattle and Spokane who experienced no change in their water supply. Eligible families included at least one child between the ages of 2 and 10 years old, or a member greater than age 65. Data were collected in two phases. The first phase was before the water treatment plant upgraded to include filtration. The second phase was conducted during the same months in the year following the treatment plant upgrade. Participants completed Water Consumption Surveys (WCS) during each phase of the study. The WCS asked about consumption of water categories (tap water, hot water beverages, cold water beverages, treated water, and bottled water) by location (home, work or school, and away from home, work, or school) for a single day. The water consumption data was analyzed by water type, demographic, and geographic categories. Statistically significant differences, as determined by t-tests, were found between demographic and geographic groups. Participants completed daily health diaries. At the end of each phase, participants completed a questionnaire that asked about symptoms of gastrointestinal illness they experienced in recent weeks. A reliability analysis using kappa statistics was conducted on the recall of illness event data by comparing participants' daily reporting from the health diaries to the number of illness events reported on the recall forms. The agreement between recalled data and prospectively recorded symptom information was variable but generally demonstrated moderate agreement. Most studies concerning recall of gastrointestinal symptoms have been limited to diarrhea as the only outcome and have been conducted in developing countries where both the prevalence and impact of diarrhea are high. The SSEEDS illness recall data are unique in that it examines recall of gastrointestinal illness events (including soft and loose stools and vomiting) within a mostly middle-class cohort in the United States.

10522- Helicobacter pylori infection - influenced by environmental factors?

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Objective
Helicobacter pylori infection are very common and are of high importance. It seems to be a causal agent for peptic ulcers. Potential risk factors of transmission and infection have been published but the route of transmission still remains unclear. Preschool children are thought to be the main risk population. Thatswhy the study was planned to determine potential sources of H. pylori in the environment of these children.

Method
All 1998 school beginners (birth cohort 1991/92) in the City of Leipzig and Leipzig County participated between winter 1997 and summer 1998 as part of the mandatory medical examinations carried out by the department of Public Health.. The participation was voluntary. The study involved the administration of the gastric *H. pylori* colonization test using the in vivo [^{13}C]urea breath test and a detailed parent-completed questionnaire.
From the whole population of 3919 school beginners 3347 participated in the test and 2888 parents completed the detailed, self-administered questionnaire.

Results
The prevalences differ between city and county. The City-wide *H. pylori* prevalence was 6.5% (95% confidence interval [CI] 5.3-7.6) and 5.7% (CI 4.2-7.0) in the County. To identify variables with close associaten the cluster analysis (WARD's method, Euklidean distances) was carried out. The set of variables near to the *Helicobacter pyl.* variable has been included in a multivariate logistic regression model. Odds ratios (OR) have been calculated. Among City children, the risk is significantly increased with 'contact to a pet hamster' (OR=2.4; 95 percent confidence interval [CI] 1.2-4.7; $p<0.015$) and 'travels to Asian countries' (OR=3.7; 95% CI 1.6-8.7; $p<0.002$). Among County children, *H. pylori* positivity increased significantly with the 'drinking of untreated water from non-municipal sources in allotment gardens' (OR=16.4; 95% CI 3.1-88.5; $p<0.001$), 'more than 3 children living in a household' (OR=4.2; 95% CI 1.2-14.6; $p<0.02$) and 'contacts to a pet hamster' (OR=2.4; 95% CI 1.0-5.7; $p<0.04$). Analysis of clinical symptoms in the child or a family history of recurrent abdominal pain, dyspepsia, gastric/peptic ulceration, etc. indicates that these host factors do not significantly contribute to the prediction of H. pylori positivity.

Conclusion
In summary, indirect fecal-oral transmission and living conditions appear important risk factors in the spread of this infection. Of special interest from the point of view of environment seems to be the water path especially if the children come in contact with water from nonmunicipal sources. Clinical symptoms not necessarily predict *H. pylori* positivity in a general population sample.