their lifetimes (7). The prostatitis lesion was found in 40 (44%) of 91 men at random autopsy (8). In another study of 100 consecutive autopsies on men who died suddenly in automobile accidents and from other causes, the prevalence of histologic signs of prostatitis increased with age and was highest when benign prostatic hyperplasia was also present. Prostatitis was present in 22% of men under 40 years of age and in 60% of those over 40 years of age (9).

In fact, the line between benign prostatic hyperplasia and prostatitis is blurred. Prostatitis as a histologic lesion has been found in 98% of patients with benign prostatic hypertrophy (10). Microbial tests on benign prostatic hyperplasia tissue have found significant rates of infectivity. In another study, more than 70% of transurethral resection of the prostate specimens showed clinical or laboratory signs of infection (11). Benign prostatic hyperplasia and prostatitis cannot be distinguished by symptoms, and some believe that they may be the same disease.

In these days of prostate specific antigen testing, more than 50% of men who undergo biopsies for prostate cancer have a prostatitis lesion whether they have cancer or not (Gottesman et al., unpublished data; McNeal, personal communication, 1995). Prostatitis occurs at an early age, and prostate cancer decades later, in the same part of the prostate gland, the peripheral zone.

Why aren't DNA techniques being unleashed on what is apparently the most common and most purulent unknown inflammatory disease in men—an inflammatory lesion that is associated with benign prostatic hyperplasia and prostate cancer? Surely, DNA microbial testing has important implications for all three major prostate diseases—prostatitis, benign prostatic hyperplasia, and prostate cancer.

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Risk Factors for Severe Leptospirosis in the Parish of St. Andrew, Barbados

To the Editor: Leptospirosis, an important zoonosis in most warm-climate areas, is endemic in most Caribbean countries (1). The disease was first reported in Barbados 60 years ago (2), and since 1979 has been the subject of continual study as the result of the establishment of the Leptospira Laboratory by the governments of Barbados and the United Kingdom. The annual incidence of severe leptospirosis in Barbados over the past 17 years has been approximately 11.5 cases per 100,000 population with a death rate of 13%. However, the incidence rate varies in the parishes of Barbados. For the 12-year period from 1979 to 1991, the lowest incidence rates were in St. Peter (9.5 cases per 100,000 population) and St. Michael (9.9 cases per 100,000 population), while the highest was in St. Andrew (40 cases per 100,000 population). This greater than fourfold difference in incidence rates has been attributed to differences in rainfall (3). We performed a retrospective case-control study to determine what other factors were important.

We identified cases of leptospirosis from the records of the Leptospira Laboratory and included them in the study if they occurred from January 1980 to December 1993, if the home address was in the Parish of St. Andrew, and if laboratory evidence of leptospirosis was confirmed by one or more of the following: an IgM ELISA titer ≥160 in a single sample, a titer in the microscopic agglutination test (MAT) of ≥800 in a single sample, a fourfold or greater rise in antibody titer between two samples tested by the same method, or isolation of leptospires from blood or urine cultures (3).

Of the 36 cases of laboratory-confirmed leptospirosis and 41 controls (selected for residence close to the case-patient), 22 patients and 38 controls were included in the study. For case-patients, the mean age at onset of symptoms was 30.8 years (range 8 to 73 years); 28 (78%) of 36 cases occurred in males. The mean age of controls was 31.3 years (range 13 to 78 years); 15 (39.5%) of 38 controls were male. Controls were matched for age, but because St. Andrew is a sparsely populated parish, and because the survey was conducted during the day, it was difficult to recruit sufficient male controls. The participants were administered a questionnaire, and blood samples were taken and tested for leptospiral antibodies. Serologic results were compared with the results obtained for each of the patients during their acute illness and with the results of previous follow-up studies conducted over several years.

Gardening was a significant risk factor (odds ratio [OR] 4.57, 95% confidence level [CL] 1.09-20.36) and appeared to remain so whether gloves were worn or not, as was the presence of dogs around the home (OR 7.82, 95% CL 1.79-46.55). With few exceptions, the respondents kept dogs, and these animals are an important risk factor for leptospirosis in Barbados (6). A positive association was observed between illness and wearing boots in the garden or yard (OR 8.5, 95% CL 1.93-42.55), but this may be because case patients had changed their behavior since recovery, because they were working in wetter areas than the controls, or because the male/female ratio was lower among controls. We were unable to define the odds ratios for walking barefoot some or all of the time because none of the controls admitted to going barefoot. The most important risk factor we identified was walking through ponds or stagnant water (OR 25.62, 95% CL 2.89-1151.84). Flooding is common during the rainy season in Barbados, and people living in rural areas such as St. Andrew are often exposed in this way. These risk factors bear a striking resemblance to those identified in the outbreak in Nicaragua a few months after our study (7).

We conclude that almost all of the patients had multiple risk factors for leptospiral infection. Few indicated a change in lifestyle since recovering from leptospirosis. Serologic evidence of recent re-exposure to leptospirosis was detected in two (17%) of 12 case-patients.

The relatively high rainfall in St. Andrew may have contributed to their risk for leptospirosis by enhancing the survival of leptospires in the soil and water. The incidence of leptospirosis in St. Andrew shows a close association with mean monthly rainfall, the highest incidence during the period studied being October and November. However, when individual cases were examined, a less strong correlation was observed between onset of symptoms and rainfall in the preceding month and with rainfall in the preceding 3-month period. No evidence was observed of clustering of cases in months or years with rainfall above the mean. Similar findings have been reported for the island as a whole (4,5). The incidence of leptospirosis appeared to lag behind the rainfall, since rainfall tended to increase from June to a peak in November, while leptospirosis incidence increased from August to November. There was a marked decrease in rainfall in December each year, with the dry season continuing until May. However, continuing low incidence of leptospirosis was seen throughout the less wet months, until during the months of May to July only one case occurred during the study period.

On the basis of these findings, we conclude that the ground remains sufficiently damp during the period from December through the early months of the year for leptospires to survive. As the middle months of the year are reached, the ground may become too dry for leptospires to survive. This would also account for the apparent lag between the onset of the rainy season and the rise in leptospirosis incidence, as the ground may take some weeks of consistent rainfall to become saturated.

No clustering of cases in time was observed, which confirms that leptospirosis in Barbados is endemic and that increases in incidence result from multiple sporadic cases rather than microepidemics (5). Cases were clustered geographically, but this may have been an artifact resulting from

variation in population density. Moreover, the place of residence is not necessarily the place of exposure to leptospirosis.

We emphasize the importance of public education regarding the relative risks, as a means of preventing exposure, and of continuing education of physicians and primary health-care workers to raise their awareness of the seasonal distribution and early symptoms of leptospirosis.

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Electronic Communication and the Rapid Dissemination of Public Health Information

To the Editor: In the United States, communicable disease surveillance, investigation, and control are the responsibility of the states. The Centers for Disease Control and Prevention (CDC) provides epidemiologic and laboratory support to the state and territorial epidemiologists (state epidemiologists) and state public health laboratory directors (state laboratory directors), who are located in each of the 50 states, Washington, D.C., the Virgin Islands, the Federated States of Micronesia, American Samoa, the Marianas Islands, and Puerto Rico. Historically, communication between CDC and these state representatives has been conducted by telephone, facsimile, or letter, and more recently by the WONDER (1) electronic mail (e-mail) system. We examined the timeliness and coverage of the WONDER system when used to contact state epidemiologists and laboratory directors during two recent foodborne outbreaks.

The first outbreak was reported to CDC on February 10, 1995, by the Communicable Disease Surveillance Centre (CDSC) in the United Kingdom. CDSC had linked an outbreak of salmonellosis in the United Kingdom to a snack food distributed to many countries including the United States (2). CDC decided to notify all state epidemiologists about the outbreak immediately so that they could take appropriate action to protect consumers and report suspected cases. This e-mail message was ready to be accessed by all state epidemiologists from 4:27 p.m. Eastern Standard Time (E.S.T.) on Friday, February 10, 1995.

The second outbreak involved *Salmonella* serotype Stanley infections associated with the consumption of alfalfa sprouts. In the United States, the outbreak was recognized when a larger than expected number of isolates of *Salmonella* Stanley for the first week of June 1995 was reported (3). CDC notified state epidemiologists and laboratory directors about the outbreak and requested that cases of *Salmonella* Stanley infection be reported and *Salmonella* Stanley isolates be sent to CDC. This e-mail message was ready to access from 9:41 a.m. E.S.T. on Friday, June 9, 1995.

These two e-mail messages were sent to two group codes maintained by the Council for State and Territorial Epidemiologists and the Association of State and Territorial Public Health Laboratory Directors on the CDC WONDER e-mail system. The subject heading for these messages indicated that they were urgent and from CDC. The messages were available for 22 days from the day of posting, at which time unaccessed messages were automatically returned to sender. Each message was sent with an automatic receipt acknowledgment function.