

Houston Health

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Houston Department
of Health and Human Services



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Focus on Epidemiology



DNA tool enhances HDHHS' disease surveillance

Technology allowing DNA fingerprinting of bacteria responsible for food-borne illness is turning the Houston Department of Health and Human Services (HDHHS) into an even better disease detective.

The enhanced disease-surveillance capabilities are possible thanks to pulse-field gel electrophoresis, or PFGE, equipment that enables HDHHS' Bureau of Epidemiology and Bureau of Laboratory Services to use their expertise to more precisely identify illness outbreaks and track down the infectious sources – more rapidly than ever.

“This technology determines the existence of cases that look alike,” said Dr. Raouf Arafat, Chief, Bureau of Epidemiology. “Finding similar cases tells us that we need to go to the community, perform an immunological investigation to link them to a food source and declare them a cluster or an outbreak.”

Previously, when cases of food-borne illnesses were discovered in different areas of the city, HDHHS could determine that they were related epidemiologically only after an investigation revealed the people affected ate at the same restaurant or participated in a common activity.

In contrast, PFGE detects patterns in bacteria implicated in illnesses and stores the information in an electronic database of DNA fingerprints easily accessible from HDHHS computers. During outbreaks, the PFGE's software can sort through the patterns to establish which bacteria are part of the same strain.

Essentially, it permits HDHHS to study cases and clusters of food-borne illness at a genetic level.

“Bacteria that we isolate from one source may be quite different from what we isolate from another source,” said Dr. Vern Juchau, Chief, Bureau of Laboratory Services. “They may be the same genus and species, but they are not the same organism. If we can say they appear to be the same strain of an organism, then we can say that they probably came from a common source.”

Houston is only the third city in the country awarded the PFGE technology through a grant from the Centers for Disease Control and Prevention, which target the tool for



Dr. Bassam Salameh, Microbiologist with the Bureau of Laboratory Services, processes microbe isolates with pulse-field gel electrophoresis equipment, technology recently acquired by HDHHS to obtain DNA fingerprints of bacteria responsible for food-borne illnesses.

state health departments. The CDC accepted and funded HDHHS' grant proposal, awarding Houston \$281,000 to launch the Epidemiology and Laboratory Capacity for Infectious Disease Surveillance (ELCIDS) program. The grant helped HDHHS secure the equipment and hire two additional staff members for the Bureau of Epidemiology and a third at the lab.

Houston's characteristics point not only to the need to be on guard for a possible breakdown in food safety, but

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Technology speeds tracing of contaminated food

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also the reasons the city is a worthy recipient of the technology. Aside from being one of the largest cities in the country, Houston has more than 11,000 restaurants – 25 percent to 30 percent ethnic – serving millions of meals every week. The Port of Houston is the world's eighth busiest and in part earned that distinction because Houston is a big importer of food.

Also important is the fact that 40 percent of the investigations conducted every year by the Bureau of Epidemiology are food related.

The three most prevalent food-borne diseases in Houston are hepatitis A, shigella and salmonella. A review of food-borne illnesses between 1995 and 1999 revealed that an average of 315 cases of hepatitis A are reported every year, followed by an average of 282 cases of shigella and 231 cases of salmonella.

A distant fourth is campylobacter at an average of 53 cases per year. Other infectious diseases, each registering less than 10 cases in Houston, include vibrio, listeria, brucella and E. coli.

According to the CDC, 76 million cases of food-borne disease occur each year in the United States. The agency also estimates that there are 323,000 hospitalizations and 5,000 deaths related to food-borne illnesses each year. The most severe cases tend to occur in the very old, the very young, those who have an illness that reduces their immune system function and in healthy people exposed to a very high dose of an organism.

However, most cases are mild and cause symptoms for only a day or two. The symptoms produced depend greatly on the type of microbe. Numerous organisms cause similar symptoms, especially diarrhea, abdominal cramps and nausea. There is so much overlap in

symptoms that it is rarely possible to say which organism is likely causing a given illness unless laboratory tests are conducted to identify the microbe, or unless the illness is part of a recognized outbreak. The CDC has identified more than 250 food-borne diseases.

Raw or under cooked meat and poultry, raw eggs, unpasteurized milk and raw shellfish are the most com-

Surveillance (ELCIDS) as a program able to isolate and identify bacteria implicated in cases of salmonella, shigella and E. coli infection. The program will continue the certification process for microbes causing the most prevalent food-borne illnesses in the country until becoming a CDC-certified site.

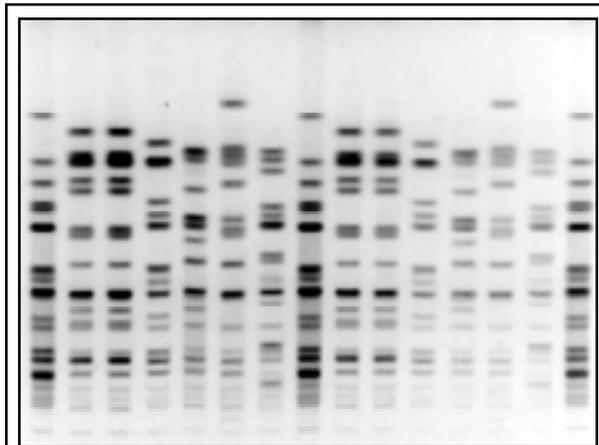
Arafat said he expects HDHHS will earn comprehensive certification sometime near the end of the year. The process involves collecting and isolating samples of the disease-causing organisms and confirming results, first with the state's certified site and then the CDC.

ELCIDS helps ensure HDHHS' participation in PulseNet, the national molecular subtyping network for food-borne disease surveillance. HDHHS will send the DNA fingerprints of organisms collected in Houston to PulseNet for electronic storage at the CDC.

PulseNet is a component of the Food-Borne Diseases Active Surveillance Network, or FoodNet, a collaborative project begun in 1996 by the CDC, the U.S. Department of Agriculture and the U.S. Food and Drug Administration as a response to the increase in food-borne illnesses.

In the past, HDHHS could isolate bacteria and identify it, which helped with treatment because physicians could determine the best antibiotic to use. Now, PFGE technology greatly enhances HDHHS' ability to track down infectious food sources to stop the spread of disease.

The result is a happier and healthier Houston.



A gel processed at the HDHHS' laboratory shows patterns, or bands, detected in bacteria implicated in food-borne illnesses. Pulse-field gel electrophoresis equipment, recently obtained by HDHHS, can quickly sort through the patterns to link bacteria and track down contaminated food sources.

mon culprits of food-borne disease.

PFGE technology not only permits HDHHS to compare newly collected bacteria from stool samples with its archived database of past local cases, but also allows comparison with organisms isolated and identified by Texas Department of Health and CDC laboratories. If the bacteria's DNA pattern matches a strain identified at the local, state or national level, HDHHS can alert the public that an outbreak may be developing and at the same time take appropriate steps to stop the spread of disease.

The CDC has already certified the Epidemiology and Laboratory Capacity for Infectious Disease

HDHHS provides infectious disease data online

Ninety-eight percent of all malaria cases investigated between 1994 and 1998 by the Houston Department of Health and Human Services (HDHHS) were reported in people who traveled to Central America or West Africa.

A majority of the cases of meningococcal disease in Houston occur during the winter months. St. Louis Encephalitis, with local outbreaks roughly every five years, has affected men disproportionately in the last 13 years.

The data represents infectious disease trends available online from HDHHS for use as a resource by the public, especially Houston researchers and the medical community. *Epidemiology Notes*, a quarterly newsletter offering five-year analytical reviews of various diseases, may be accessed at www.ci.houston.tx.us/departme/health/epi.htm.

"Epidemiology Notes represents the Houston Department of Health and Human Services' effort to provide quick and easy access to information on infectious diseases and reportable conditions specific to Houston," said Dr. Raouf Arafat, HDHHS' Bureau of Epidemiology Chief. "It is our way of providing feedback to the health care community and the public and our tool for delivering current surveillance data available on communicable disease and reportable conditions in Houston."

Newsletter editions currently online provide a local review of meningococcal disease, St. Louis Encephalitis, malaria, salmonella, hepatitis A and a report on the incidence of drownings and near-drownings. Salmonella and hepatitis A, the focus of the latest issues of the newsletter, are two of the most prevalent infectious diseases in Houston.

Salmonella ranked as the fifth most commonly-reported infectious

disease between the years 1995 to 1999, behind hepatitis C, hepatitis B, hepatitis A and shigella. During the period, health care providers reported to HDHHS a total of 1,259 salmonella cases, an average of 252 annually.

Salmonella is a bacterial infection causing fever, diarrhea and abdominal cramps. It usually lasts four to seven days and most people recover without treatment. However, in some people, the diarrhea may be so severe that hospitalization is needed. In these patients, the infection may spread from the intestines to the bloodstream, then to other body sites and can cause death if it is not promptly treated with antibiotics. The elderly, infants and those with impaired immune systems are more likely to have a severe illness.

In Houston, the disease follows a

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**Dr. Raouf Arafat
Chief, Bureau of Epidemiology**

remarkably predictable pattern of yearly infection spiking sharply to a range of 30 to 50 cases between late June and October and declining abruptly by November.

Children under the age of five accounted for more than 44 percent of the reported salmonella cases, making them the most affected segment of the population. In terms of race and ethnicity, Hispanics had the highest number of cases at 36 percent, followed by whites, 28 percent; blacks, 19 percent; unknown 9 percent; and Asians and others, 8 percent.

Although Asians and other ethnic groups constituted a minority of just 8 percent of the cases, they had

significantly higher rates of infection than all other individual groups because their population at risk was very small, less than 4 percent of the general Houston population.

A total of 1,577 cases of hepatitis A were reported to HDHHS between 1995 and 1999. Hepatitis A virus is one of several types of viruses that attack the liver. Ill people may experience jaundice, abdominal pain, dark urine, loss of appetite, fatigue, nausea, vomiting and fever.

The disease frequently passes from person to person by the fecal-oral route. Hence, it is not surprising that it occurs frequently in children who may not have mastered the practice of regular hand washing. Activities thought to contribute to high frequencies of the disease in children also include sharing of food and

putting in their mouths objects contaminated with stool of a child with hepatitis A.

Data reveals that more cases of hepatitis A occurred in children between the ages of 5 and 9 than in any other age group. Children in this age group represented 29.4 percent of the cases and were

followed by those in the 10 to 14 age group, 15 percent, and 1 to 4, 10 percent.

The hepatitis A vaccine, licensed in the United States for use in adults and in children 2 years of age and older, and immune globulin prevent infection. Immune globulin is a preparation of antibodies that can be given before or after exposure to the virus for short-term protection against hepatitis A. Immune globulin must be given within two weeks after exposure to hepatitis A virus for maximum protection.

Epidemiology Notes may also prove helpful to the public because it serves as a review of the basics of the illnesses as well as preventive measures.

Calendar

FEBRUARY

American Heart Month

Low Vision Awareness Month

National Children's Dental Health Month

American Dental Association
www.ada.org

Wise Health Consumer Month

American Institute for Preventive
Medicine
aipm.healthy.net

1-6

National Patient Recognition Week

2

National Patient Recognition Day

6-12

Cardiac Rehabilitation Week
National Burn Awareness Week

7

Infant Mortality Conference

Houston Department of Health and

Human Services (HDHHS)

For more information or to register, call
713-794-9335.

14

National Condom Day
American Social Health Association
www.ashastd.org

MARCH

National Nutrition Month

American Dietetic Association
www.eatright.org

National Eye Donor Month

National Social Work Month

Workplace Eye Health and Safety Month

12-18

Pulmonary Rehabilitation Week

19-25

National Inhalants and Poisons Awareness Week

National Inhalant Prevention Coalition
www.inhalants.org

Children and Healthcare Week™

Association for the Care of Children's
Health
www.acch.org

National Poison Prevention Week

Poison Prevention Week Council

24

World TB Day

30

National Doctors' Day

APRIL

National STD Awareness Month

2-8

National Medical Laboratory Week

3-9

National Public Health Week

7

World Health Day

16-23

National Infants Immunization Week

New BARC vans prove safer

The Bureau of Animal Regulation and Care, BARC, is now equipped with 12 new vans that are more user-friendly for impounded pets as well as for animal control officers.

The new vans come outfitted with a more powerful air conditioning system to keep animals cooler during Houston's hot summer. The vans' kennels also are designed to provide a limited view, a feature which helps keep impounded animals more relaxed.

"Animals are extremely territorial, so their inability to see very much once inside the van makes it less stressful for them," said Don Gallow, animal control officer. "Any animal that can't see other animals or people becomes calmer."

The vans are safer than older impounding vehicles because they have floorboards closer to the ground and animal control officers don't have to lift the animals as high when placing them in the kennels. The probability that officers will lose their balance or get bitten while loading a large animal decreases with the lower vans. Animals usually jump around to try to free themselves when being loaded into the vehicles.

The vans are a smaller size, making them more maneuverable in traffic. Still, the vans are able to carry two additional animals than the older vehicles. They can accommodate nine dogs, four large and five small. The kennels still provide enough space for the animals to move around.



Jeffrey Hastings, Animal Control Officer, places a puppy inside one of 12 new HDHHS vans which will be used by the Bureau of Animal Regulation and Care (BARC) to impound loose pets.

Seniors must assess Medicare options to secure aid

Seniors reverting to health insurance through traditional Medicare in 2001 need to be mindful of available options that will help pay for medical services not covered by the federal program.

“Elderly citizens count on guaranteed rights, but they have important decisions to make before March 4 to ensure they receive help filling in coverage gaps for expenses not reimbursed by Medicare,” said Rose Ortega, Benefits Counselor with the Houston/Harris County Area Agency on Aging at the Houston Department of Health and Human Services (HDHHS).

Medicare pays 80 percent of health care costs incurred by people 65 or older, but beneficiaries must pay the remaining 20 percent after meeting deductibles and co-payments.

Seven of the eight health maintenance organizations, or HMOs, providing Medicare services pulled out of the local market December 31, 2000, affecting about 100,000 beneficiaries in Harris County. The remaining HMO closed enrollment because of membership capacity.

Seniors who lost Medicare HMO coverage as a result of the HMO exodus have until the March 4 deadline to purchase supplemental insurance, commonly known as “Medigap

policies.” Insurance companies are barred from denying coverage or placing policy restrictions on seniors who meet the deadline for the guaranteed protection period, Ortega said. The period also guarantees coverage despite pre-existing conditions and protection from higher premiums because of current or past health conditions.

Seniors may buy any of the 10 standard Medigap plans, but only those labeled A, B, C or F guarantee protection from a medical history review by insurance companies. The Texas Department of Insurance approves the companies allowed to sell the guaranteed plans as well as the premium rates.

Plans D, E, G, H, I and J are available from most insurers but are subject to certain conditions and restrictions including pre-existing or current health conditions.

The guarantee protection covers all 10 policies for first-time Medicare beneficiaries who have been in an HMO for less than 12 months. Also, people under age 65 and on Medicare due to a disability are guaranteed plans A, B, C and F if the insurance company sells

such policies to people under 65.

The Qualified Medicare Beneficiaries (QMB) program serves as a supplemental policy for seniors with limited incomes. The program pays the Medicare Part B premium and all Medicare deductibles and co-payments.

Other alternatives for Medicare recipients with limited incomes include Interfaith Ministries Senior Health Network and the Harris County Hospital District’s Gold Card program.

Seniors and disabled people 55 or older pay a \$10 annual membership to Interfaith Ministries and receive care from a designated network of providers which waive Medicare deductibles and co-payments. Only people who have Medicare A and B and do not receive Medicaid benefits are eligible for membership.

The Gold Card provides services on a sliding-scale basis through three hospitals, 12 health centers and a dental clinic.

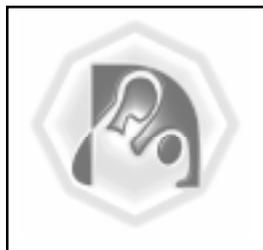
For more information on Medicare health options, call the Houston/Harris County Area Agency on Aging’s Benefits Counseling Program at 713-794-9001 or 1-800-213-8471.

Infant Mortality conference scheduled Feb. 7

Contributing factors and medical interventions that help reduce the toll of birth defects, pre-term labor and perinatal HIV on infant mortality rates will be the focus of a conference sponsored by the Houston Department of Health and Human Services.

Infant Mortality and Morbidity: Influencing Factors and Interventions is scheduled Feb. 7 from 3:30 p.m. to 7:15 p.m. at Memorial Hermann Healthcare System, 7737 Southwest Freeway.

The conference will provide updates on research and the management of



pregnancy problems and inform participants about local community resources that help parents improve birth outcomes.

Professionals who will benefit from the conference include obstetricians, pediatricians, family practitioners, general practitioners, nurse practitioners, certified nurse midwives ob/gyn nurses, social

workers and health educators. The UT-Houston Medical School designated the program as a three-hour, category 1 CME while the UT-Houston School of Nursing designated it as a three-hour CNE, category 1. The program also will provide three hours of continuing education units to social workers through the University of Houston.

Registration fees are \$25 for physicians; \$20, nursing professionals and \$15 for students and the public.

For more information or to register, call 713-794-9335.

Vital statistics office opened

The Houston Department of Health and Human Services (HDHHS) has opened a vital statistics office at the Magnolia Health Center, located at 7037 Capital.

The new office issues birth and death certificates to qualified individuals for a nominal fee.

Staffed by personnel able to assist Spanish-speaking clients, the office opens from 8 a.m. to 3 p.m. and closes from 12 p.m. to 1 p.m. It is located on the first floor of the health center.

Documents available and their cost include birth certificates in Houston and Texas, \$11; wallet-size birth certificates, \$12; certification of birth facts, \$11, and Houston death certificates, \$9.

The documents also are available at HDHHS' headquarters, 8000 N. Stadium Drive.

For more information, call 713-247-1686.



Houston's "Human AIDS Ribbon"

The Houston Department of Health and Human Services and various HIV/AIDS-related organizations formed a large "Human AIDS Ribbon" on December 1 to observe World AIDS Day. A red ribbon is used by advocates as the symbol of AIDS and HIV awareness. Mayor Lee Brown and councilman Jew Don Boney Jr. spoke at the event, sponsored to raise public awareness of the impact AIDS has on society and help prevent the spread of HIV. The sponsoring groups, which also used the day to offer free HIV testing at three sites, included the Montrose Clinic, the National Association for the Advancement of Colored People (NAACP), Association for the Advancement of Mexican-Americans (AAMA), Families Under Urban Social Attack, Houston Area Community Services and Chicano Family Center.

HIV/STD bureau, local groups to host conference

The Bureau of HIV/STD Prevention at the Houston Department of Health and Human Services and various HIV/AIDS organizations from Houston and Texas are coordinating local preparations for the 2001 Community Planning Leadership Summit for HIV Prevention.

The national conference is scheduled March 16-18 at the Hyatt Regency Houston, 1200 Louisiana Street.

The National Minority AIDS Council (NMAC) will sponsor the conference and the local groups will serve as conference hosts.

"Community Planning, Changing the Course of the Epidemic," is the theme for conference. It will offer 60 workshops, institutes and other sessions designed to enhance the HIV prevention planning skills of participants. The program is organized in four tracks: Effective Interventions, Future Trends in Community Planning, Managing the Process and The Steps of Community Planning.

For more information or to register for the conference, visit NMAC's web site at www.nmac.org/conference/CPLS_2001/cplshome.htm.

To sign up as a volunteer, call Kathy Goode, co-chairwoman of the Volunteer Host Committee, at 713-794-9121.

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M. desVignes-Kendrick, MD, MPH, Director

Kathy Barton, Chief, Office of Public Affairs

Porfirio Villarreal, Editor

Rita Rodriguez, Senior Community Liaison

Call 713-794-9021 to report news or offer suggestions for articles.

HDHHS website:

www.ci.houston.tx.us/departme/health

City of Houston website:

www.ci.houston.tx.us

