

**COUNTY OF LOS ANGELES - DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH - DISEASE CONTROL PROGRAMS
VETERINARY PUBLIC HEALTH AND RABIES CONTROL**

FMD Outbreak Expensive

Foot-and-mouth diseases is one of the most highly contagious, infectious, viral diseases of animals. It can be spread by the wind and on clothing. FMD is a disease which has no cure. The United Kingdom's current fight with FMD this year illustrates how economically devastating it can be to a developed country. Great Britain has spend billions of dollars trying to contain their epidemic. Agriculture economic losses are minuscule compared to the losses incurred by the British tourism industry. For every dollar lost in agriculture, tourism lost about one hundred.

United Kingdom's FMD Policy

Currently culling (killing) of all potentially exposed animals is the method of choice for eradication of FMD in the UK (Table 2). Britain's lucrative tourist industry faces a dismal summer as the foot-and-mouth epidemic scares off foreigners and either keeps locals indoors or prompts them to flee abroad. It could take years to get visitors back again. This is despite politicians trying to convince the public that Britain is "open for business".

Table 2 What UK's policies mean.

UK Policy	What it Means
Culls on infected farms *	usually culled within 24 hours of the disease being diagnosed
Neighboring farm culls*	usually culled within 48 hours
Slaughter on suspicion	an animal is marked for slaughter when a veterinarian cannot make a clear diagnosis of foot-and-mouth, but cannot rule out the disease

C Sheep, pigs, and goats on neighboring farms are then culled within 48 hours. Cattle will also be culled, unless high standards of biosecurity can allow them to be exempted.

Public Health Problems Associated with FMD in the UK

The first recognized public health problems of the FMD epidemic were increased depression and suicide rates among UK farmers as they saw their life's work vanish with the killing of over three million livestock. The pyres destroying the livestock emitted smoke and toxic fumes containing carcinogens. The large number of livestock buried created concerned over pollution of the groundwater. There was public fear that BSE infected cattle, when buried, might contaminate drinking water. The first reported

infectious disease problem encountered with Great Britain's FMD epidemic involved three British military personnel working on the disposal of dead livestock. They came down with the zoonosis, Q-fever.

Cost of an FMD Outbreak in Los Angeles

An outbreak of FMD in Los Angeles County would impact agriculture, wild animal compounds and the Los Angeles Zoo. Nonetheless, the largest financial impact would be on tourism. Los Angeles County receives more domestic tourism than any other county in California. In 1999, 42.6 million person-trips took place in and through Los Angeles County. Local governments and agencies in Los Angeles County receive \$565 million in fees and taxes from direct and indirect visitor spending.

In 1998, travel into the county provided 133,190 jobs and a \$3.1 billion payroll (versus 126,470 jobs and a \$2.9 billion payroll in 1997). That year, visitors in Los Angeles County spent over 13 billion dollars locally. Foreign tourists represented 33% of the spending, even though they made up only 23% of the total tourist visits. A FMD outbreak would cause tourism to abruptly shrivel as visitors found other locations to spend their money.

Last Two FMD Outbreaks in Los Angeles

The last two FMD outbreaks in Los Angeles County were in 1924 and 1929. During the outbreaks it was unlawful to move animals of any kind out of the county, or from place to place within the county without a permit. Quarantine guards in Los Angeles County numbered as high as 470. A Long Beach oil worker was shot by a quarantine guard one evening because of his failure to halt in a restricted area.

During the 1924 epidemic, thirteen motorcycle patrols and twelve car patrols were established. Residents traveling by car outside Los Angeles County were warned to leave all pets at home. If pet animals were found in cars, the cars were turned back unless they gave their pets up for destruction. The 1924 epidemic caused damages well into the millions of dollars from the loss of livestock and from the effects of embargos placed on the County.

The nation's last outbreak of foot-and-mouth disease occurred in Los Angeles County during 1929, but due to the County's preparedness, it was much less costly than the 1924 epidemic. Control of the 1929 outbreak was accomplished with less spread than in any previous outbreak in the United States.

The Board of Supervisors out-of-pocket costs of the two epidemics varied dramatically. The 1924 control costs were \$250,000 (\$2,602,339 in 2001 dollars) compared to the \$13,000 (\$135,321 in 2001 dollars) spent in the 1929 epidemic.

Cost of FMD in the United States

Chris Hurt, PhD, professor of agricultural economics at Purdue University, developed a model of the costs of a FMD epidemic in the United States (table 1). Dr. Hurt's model is based on the following assumptions: FMD becomes widespread in the United States; all imports from the United States will be halted for one year; no pork or beef is imported from countries that currently have FMD, including all of Europe, Canada and Mexico do not have an outbreak, and U.S. consumers reduce their consumption of beef and pork by 5 percent for one year, while increasing their poultry consumption.

Table 1 Cost of FMD Outbreak in the U. S.

Financial Impact of FMD in the United States		
Affected Group	Money Lost	Percent of total
American taxpayers	\$6 billion loss	38%
Beef producers	\$4.3 billion loss	27%
Pork producers	\$2.4 billion loss	15%
Corn producers	\$1.7 billion loss	11%
Soybean producers	\$1.4 billion loss	9%
Total negative economic effect: \$15.8 billion loss		

Chicago Holds FMD Meeting Last Month

Dr. Kenyon served as a moderator for the recent FMD Summit, held June 4 in Chicago. Close to 150 government officials, veterinarians, feed industry representatives, foreign experts on FMD, and others, gathered to discuss a virtual outbreak, as well as ways to prevent a real one.

Speakers from industry groups, including the National Cattlemen's Beef Association and the National Pork Producers Council, highlighted measures producers must implement to control or prevent a FMD epidemic. If preventive measures taken by industry and the government were to fail, and the disease arrived on U.S. shores, there are several methods that could be taken to eradicate it. Several speakers offered perspectives on stamping-out, vaccination, and combination approaches.

The advantages of the ring vaccination method, where veterinarians begin vaccinating a circle of threatened, but not yet infected, animals a certain distance away from the infected farm and work their way in toward the outbreak farm, was discussed. The advantages of ring vaccination are: it's inexpensive, can be carried out by relatively few staff members, and reduces the drastic loss of animal life and mental anguish of owners. Even though vaccinated animals would have to be destroyed once

the disease was eradicated to return a country to an FMD-free trading zone, the pyres of burning carcasses witnessed in the United Kingdom would be avoided.

Three British Soldiers Fall Victim to Q-fever

The *Guardian* reported on 6/28/01 that three soldiers became the first human infectious disease victims of the foot-and-mouth epidemic when they came down with Q-fever. The soldiers apparently became infected while burying the carcasses on Northumberland farms. Over 2.76 million sheep have been culled and most have been buried. People handling animals are at particular risk of catching the disease, especially from pregnant sheep and cattle, many of which have been slaughtered during the cull.

Q-fever

Q-fever is an acute disease caused by *Coxiella burnetii* and characterized by a sudden onset of fever, headache, malaise, and interstitial pneumonitis. The incubation period is about three weeks. It is maintained as an inapparent infection in domestic animals. Sheep, cattle, and goats are the principal reservoirs for human infection. Transmission usually occurs by inhalation of infected aerosols. During birthing, the organisms are shed in high numbers within the amniotic fluids and the placenta. Diagnosis is made by clinical suspicion and serology. Doxycycline is the treatment of choice for acute Q fever. In 1999, Q-fever became a notifiable disease in the United States.

Q-fever in Los Angeles County

Q-fever is no stranger to Los Angeles County. Acute Communicable Disease investigates cases periodically. Last year there were three reported human cases. This April, a 69 year-old, retired, Filipino man, residing in Los Angeles, suddenly developed a fever, abdominal pain and pulmonary disease. The patient had observed the slaughter of goats in a friends backyard in Panorama City one to two weeks before the onset of illness. The man also ate some undercooked goat meat. The diagnosis was based on clinical suspicion and radiographs, then confirmed by serology the end of May. The man was treated with doxycycline and recovered.

Q-fever Considered a Terrorist Threat

Coxiella burnetii is a highly infectious agent that is resistant to heat and drying. It can become airborne and inhaled by people. Humans are often very susceptible to the disease and only a few organisms may be required to cause infection. A single *C. burnetii* organism may cause disease in a susceptible person. This agent could be developed for use in biological warfare and is considered a potential terrorist threat.