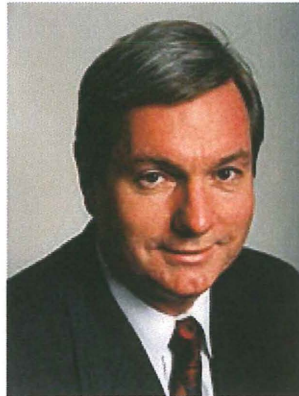


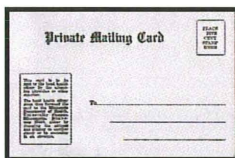
## Chapter 15

### Epidemiology



Michael Osterholm

The Minnesota Health Department has traditionally had a strong epidemiological program. Hibbert Winslow Hill, M.D., D.P.H., LL.D., a pioneer in his field, was the first official epidemiologist in the United States when the Minnesota Board of Health gave him that title on August 1, 1909.<sup>1282</sup>



From its beginnings in 1872, the Health Department has depended on reports from health professionals throughout the state to monitor disease activity. These data have been used to assess trends, identify affected populations, prioritize disease control efforts, evaluate prevention strategies, and recognize outbreaks. Reportable diseases were submitted to the department on cards such as these in the 1950s:

|                                                                                                                                                                                                |                                                                                          |                                |              |         |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------|--------------|---------|------|
| 1-58 10M                                                                                                                                                                                       |                                                                                          |                                |              |         |      |
| As Required by Public Health Law I Report to the Health Officer a Case                                                                                                                         |                                                                                          |                                |              |         |      |
| Of                                                                                                                                                                                             | Name of Disease                                                                          | In                             | Township     | Village | City |
| At                                                                                                                                                                                             | Street and house number, farm, camp, section number, name and location of hospital, etc. |                                |              |         |      |
| Patient's name                                                                                                                                                                                 | Give full name, and for child, parent's initials or guardian's name.                     |                                | Sex          | Age     | Race |
| Date of first symptoms                                                                                                                                                                         | 19                                                                                       | ;                              | of diagnosis | 19      | ;    |
| Dr.                                                                                                                                                                                            |                                                                                          |                                | of           | Minn.   |      |
| Send a card for each case of each disease listed in Reg. 10705 of the Minnesota State Health Laws & Regulations. Diseases on list marked by an asterisk shall also be reported directly to the |                                                                                          |                                |              |         |      |
| Minnesota Department of Health, University Campus, Minneapolis, Minnesota 55440.                                                                                                               |                                                                                          |                                |              |         |      |
| The H. O. or C. B. S. should fill out the blanks below and mail this report to Minnesota Department of Health, University Campus, Minneapolis, Minn. 55440.                                    |                                                                                          |                                |              |         |      |
| I received this report                                                                                                                                                                         |                                                                                          | 19                             | *Quarantined |         | 19   |
| month-day                                                                                                                                                                                      |                                                                                          |                                | Isolated     |         |      |
| Please send me                                                                                                                                                                                 |                                                                                          | Placarded month-day            |              |         |      |
| Signed                                                                                                                                                                                         |                                                                                          | Name what supplies are needed. |              |         |      |
| For                                                                                                                                                                                            |                                                                                          | *M. D. Health Officer.         |              |         |      |
|                                                                                                                                                                                                |                                                                                          | Chairman Board of Supervisors  |              |         |      |
|                                                                                                                                                                                                |                                                                                          | *Township                      |              |         |      |
|                                                                                                                                                                                                |                                                                                          | Village, P. O. Address         |              |         |      |
|                                                                                                                                                                                                |                                                                                          | City                           |              |         |      |
| *Strike out words which do not apply.                                                                                                                                                          |                                                                                          |                                |              |         |      |

<sup>1282</sup> MDH, *Minnesota's Health*, Vol. 1, No. 7, July 1947, p. 2.

State law has required the reporting of designated diseases. In the 1950s that list included the following, shown below.

Both additions and deletions have occurred to this list in the last 50 years. Some of the deletions include chicken pox, conjunctivitis, glanders, mononucleosis, pneumonia, ringworm, scarlet fever, smallpox, and trachoma. Additions include babesiosis, blastomycosis, campylobacteriosis, cat scratch disease, cryptosporidiosis, dengue virus, diphyllobothrium latum infection, ehrlichiosis, giardiasis, hemolytic uremic syndrome, hepatitis C, D, and E, histoplasmosis, human immunodeficiency virus, legionellosis, Kawasaki disease, listeriosis, Lyme disease, mumps, Reye syndrome, streptococcal disease, toxic shock syndrome, toxoplasmosis and yersiniosis.

Since 1995, the department has participated in the national Emerging Infections Program (EIP) funded by the U.S. Centers for Disease Control and Prevention in Atlanta, Georgia. EIP focuses on the identification and control of new or previously unrecognized disease problems. Through EIP, the department's public health laboratory has expanded surveillance and testing for a number of bacterial infections, and used molecular sub-typing – or "fingerprinting" – to detect and find the source of food-borne and water-borne disease outbreaks.

### Outbreaks and Interagency Cooperation

It has not always been clear where public health responsibilities in disease prevention and control begin and end. This has sometimes led to challenging relationships, particularly with other state agencies. A classic example of the difficulties encountered was the relationship between the Department of Agriculture and the Board of Health in their attempts to address food-borne and milk-related illnesses in the 1940s and 1950s.

| REPORTABLE DISEASES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MINNESOTA STATE HEALTH REGULATION (a synopsis) –</b><br>When called to a case, suspected case, or death from any of the diseases (listed below), the attending physician, within 24 hours, shall notify the local health officer (or local health department) by means of this reporting card or by phone. The local health officer (or local health department) shall mail this card to the Minnesota Department of Health, Disease Prevention and Control Section, 717 Delaware Street SE, Minneapolis, MN 55440. |                                                                                                                                                                                                                                                                 |
| <u>Immunizable Diseases</u><br>Diphtheria<br>Influenza<br>Measles (Rubeola)<br>Pertussis (Whooping Cough)<br>Poliomyelitis<br>Rubella (German Measles) and Congenital Rubella Syndrome<br>*Smallpox<br>*Tetanus                                                                                                                                                                                                                                                                                                        | <u>Enteric Diseases, Including Suspect Foodborne Illness</u><br>Epidemic Diarrhea (including Salmonellosis)<br>Shigellosis (Bacillary Dysentery)<br>Amebic Dysentery<br>Typhoid Fever<br>Paratyphoid Fever<br>*Cholera (Cases and Suspect)<br>*Botulism (Cases) |
| <u>Acute Viral Hepatitis</u><br>Type A ("Infectious Hepatitis")<br>Type B ("Serum Hepatitis")                                                                                                                                                                                                                                                                                                                                                                                                                          | <u>Tuberculosis</u>                                                                                                                                                                                                                                             |
| <u>Meningitis and Encephalitis</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <u>Occupationally-Related Diseases</u>                                                                                                                                                                                                                          |
| <u>Venereal Disease</u><br>All Types (Use VD Report card)                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <u>Diseases Possibly Related to Environmental Health Problem:</u><br>Not Reportable by Law, but Reports of Such Diseases Are Encouraged.                                                                                                                        |
| <b>OTHERS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                 |
| *Actinomycosis<br>*Anthrax<br>Brucellosis<br>Chickenpox (if patient over 16 years of age)<br>Conjunctivitis, Epidemic<br>*Glanders<br>*Leprosy<br>Leptospirosis<br>Malaria<br>Mononucleosis, Infectious<br>*Ophthalmia Neonatorum<br>*Plague                                                                                                                                                                                                                                                                           | Pneumonia<br>*Psittacosis<br>*Rabies (animal and human cases and human exposures)<br>Rheumatic Fever<br>Ringworm of the Scalp<br>*Rocky Mountain Spotted Fever<br>Scarlet Fever<br>Trachoma<br>*Trichinosis<br>Tularemia<br>*Typhus Fever<br>Yellow Fever       |
| Note: Any cluster of cases or increased incidence of any illness should be reported.                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                 |
| *Diseases marked with an asterisk shall be reported to the Minnesota Department of Health by phone (612-296-5200, -5201, or -5202).                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                 |

In the 1940s the Legislature passed a bill that assigned Agriculture, rather than Health, as the agency responsible for milk supplies. Health board members thought this was an unsatisfactory split of responsibility. The department had pioneered the control of milk and thought it was its domain. The board also thought the department was placed in a difficult position by having responsibility for milk-borne disease with little or no authority to act.

It was particularly galling when the media depicted Agriculture as the lead agency during the investigation of an outbreak of food poisoning at the Fridley/New Brighton school district in 1949. The Department of Agriculture appeared on the scene to take control. Soon after, Dr. Dean Fleming, head of the disease prevention division at Health discussed the situation with board members:

Dr. Dean Fleming: "As near as we could determine, they had not been asked to come by the people in charge. They apparently had heard about it and rushed to do their bit. After that the papers looked to them for their reports. They were the ones in the paper and on the radio."

President Thomas Magath: "It seems to me that this calls for some communication from our Board to the Agriculture Department in which we should be very specific and tell them that is none of their business and that they should keep out of it."<sup>1283</sup>

The board clearly thought that Agriculture was stepping on toes and possibly endangering the health of the population by being untrained to handle infectious disease cases.

Magath: "You have a wonderful chance to get into a very difficult position. Suppose this fellow from Agriculture had found something."

Fleming: "We were wishing he would."<sup>1284</sup>

The board felt an employee from Agriculture, who was called "state bacteriologist," did not have the skills and education needed to properly deal with outbreaks of illness:

Magath: "I don't doubt that he is pushing himself. I think we could say that by training or experience we do not consider him competent to investigate those outbreaks of human illness."<sup>1285</sup>

Charles Netz, Board Member: "After all, Dr. V is nothing more than a bacteriologist. He was from the Farm Campus."

Magath: "Yes, and he is not 'Dr.' V at all. I think we should state that he has limited educational qualifications and that he is not capable of stating an opinion."

Dr. Frederic Bass, Board Member: "That would settle that case, but sometime they might have someone who would be qualified."<sup>1286</sup>

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<sup>1283</sup> BOH, *Minutes*, January 20, 1949.

<sup>1284</sup> Ibid.

<sup>1285</sup> Ibid.

<sup>1286</sup> Ibid.

Dr. Ruth Boynton, Vice President of the Board: "I wonder if maybe we aren't a little at fault in not supplying a little information to the press on a thing of this kind which has been of public interest and which we have investigated. Don't you think we have a public relations duty here?"<sup>1287</sup>

After the board meeting, Dr. Albert Chesley wrote a letter to the Agriculture commissioner and sent a copy to the governor. The letter, dated February 1, 1949, read in part:

A report was also made to the Board on the investigation made by our Department on the food poisoning outbreak at Independent School District No.23, New Brighton, Ramsey County. The report included some discussion of the newspaper accounts of the investigation work carried on by your Department on this outbreak. The Board expressed great concern over the entrance of your Department into a matter which is strictly a problem of human communicable disease control, and it instructed me, by unanimous vote, to inform you that it takes the position that the law very clearly intends that the State Department of Health shall have complete jurisdiction in matters involving epidemics and the transmission of human disease.<sup>1288</sup>

A reply from Agriculture was received March 30:

Your letter of February 1st, 1949, relative to an investigation conducted by this department into the food poisoning outbreak at Independent School District Number 23, New Brighton, was received at my office during the time I was confined to the hospital.

I have discussed this matter with Dr. V and he informs me that it was simply a case of food poisoning and not a case of communicable disease.

You may rest assured that it shall continue to be the policy of this Department to leave all matters relating to contagious or communicable disease to the State Board of Health.

Dr. V or other representatives of this Department will be glad to discuss this matter with the State Board of Health at any time.<sup>1289</sup>

The letter was not a satisfactory response to Board President Magath: "Well, I was much disturbed by that letter and I personally am not satisfied to leave the matter at that point. If we are going to give ground in the protection of the public health we might as well quit."<sup>1290</sup>

The board continued to discuss the appropriate role of Health and Agriculture and whether or not the state bacteriologist from Agriculture had the appropriate qualifications to investigate food poisoning:

Netz: "It seems to me it is more important for that Department to check up on food before its consumption."

H. M. Bosch, Chief of Environmental Sanitation: "Enforcement of the pure food and drug laws."

Magath: "But in specific instances where the public is made sick, that is our business."<sup>1291</sup>

<sup>1287</sup> BOH, *Minutes*, January 20, 1949.

<sup>1288</sup> Letter from Dr. Chesley to Dr. Berg, February 1, 1949.

<sup>1289</sup> Letter from Dr. Berg to Dr. Chesley, March 30, 1949.

<sup>1290</sup> BOH, *Minutes*.

<sup>1291</sup> BOH, *Minutes*.

The board members weren't sure whether food poisoning was considered a communicable disease. Dr. Magath said, "I don't think you will ever get any two people to agree on a definition of communicable disease. It used to be termed contagious disease."<sup>1292</sup>

Though the discussion centered around one man and one incident, Dr. Chesley captured the larger issue when he said, "Everything in public health is spreading out so that there is no twilight zone."<sup>1293</sup>

In 1957, after continued discussions about the role of Agriculture and Health in milk supplies, executive officer Dr. Robert Barr sent a letter to Gov. Orville Freeman, outlining the Health Department's responsibilities related to milk supplies. Dr. Barr wrote that the department's responsibilities were limited to: 1) investigation and control of communicable and milk-borne disease outbreaks or of situations posing a definite threat of such outbreaks; 2) advisory services to and promotion of local milk control programs; and 3) investigation activities delegated by the U.S. Public Health Service related to enforcement of interstate quarantine regulations, such as the certification of milk supplies for use on interstate carriers.<sup>1294</sup>

### **Salmonellosis**

In the 1950s an increasing number of cases of salmonellosis was reported. There were 23 reported cases of salmonellosis in Minnesota in 1950. In 1952 there were 186 cases and one death. Two deaths occurred in 1953.

The apparent increase in salmonellosis may have been due to improved laboratory techniques for identifying the organism or increased reporting. Changes in eating habits of the population may have contributed to a real increase, as well. People ate out more frequently, and they consumed more mass-produced foods. The mass-produced foods often contained multiple ingredients provided by different suppliers. The equipment used for production was sometimes poorly designed for sanitary maintenance. Mass-produced foods for pets and domesticated animals also contributed to the problem, as it might be contaminated with salmonella-infected ingredients.<sup>1296</sup>

***"Keeping salmonella-infected feces out of food, water, and pharmaceuticals may seem an oversimplification to the solution of the problem, but therein lies the key to prevention."***<sup>1295</sup>

Dr. Henry Bauer, Ph.D., Director of Laboratory, 1973

<sup>1292</sup> BOH, *Minutes*.

<sup>1293</sup> BOH, *Minutes*.

<sup>1294</sup> Letter from Dr. Robert Barr to Gov. Orville Freeman, December 12, 1957.

<sup>1295</sup> Henry Bauer, "Growing Problem of Salmonellosis in Modern Society," *Medicine*, Vol. 52, No. 4, p. 329.

<sup>1296</sup> *Ibid.*, p. 323.

While different reasons for the increase were suggested, department professionals agreed on one solution: better food-handling methods were needed to reduce the cases of salmonellosis.<sup>1297</sup>

Concerned about the increase in salmonella infections nationwide, in 1961 the Association of State Laboratory Directors and the Association of State Epidemiologists banded together and, with the Centers for Disease Control (CDC) in Atlanta, started a national surveillance program. Each state reported weekly to the CDC on the serotypes isolated during the week.<sup>1298</sup> After analyzing these data, it was learned that poultry and poultry products were an important source of infection. Eggs, particularly powdered and cracked ones, were a common source of infection. Patients in nursing homes who drank eggnog were often infected.<sup>1299</sup> Poultry as a source of salmonella infection was again emphasized in 1987.<sup>1300</sup> State Epidemiologist Michael Osterholm said, "If you are going to drink eggnogs with raw eggs, it is not if you will get sick, it is when you will get sick."

Poultry had already been identified as the source of an outbreak of salmonellosis in Minnesota. In 1954, 12 children in 11 different households were affected after receiving Easter chicks.<sup>1301</sup> The cases were traced to two grocery stores that gave out 1,000 chicks to customers. The chicks had been obtained from a hatchery that showed no signs of infection, but the chicks had been kept in crowded conditions.<sup>1302</sup>

***"Much of prevention can be told with 'five Fs' – feces, fingers, flies, food and filth. The link in the chain of events which permits fecal matter to get into food must be broken if we ever hope to prevent salmonellosis."***<sup>1303</sup>

Henry Bauer, Ph.D., Director of Laboratories, 1973

Outbreaks of salmonellosis continued through the 1960s. In 1963, an outbreak of salmonellosis occurred in a Minneapolis nursing home. Twenty-one out of 96 patients were affected.<sup>1304</sup>

In 1966, Salmonella New Brunswick contamination was discovered in a milk-drying plant in Plainview. The production of powdered milk did not require pasteurization, so in 1966 the Board of Health decided to recommend to Agriculture that pasteurization be the first step in the powdering of milk.<sup>1305</sup>

Other outbreaks of salmonella included:

<sup>1297</sup> MDH, *Minnesota's Health*, Vol. 8, No. 7, July-August 1954, p. 4.

<sup>1298</sup> Henry Bauer, "Growing Problem of Salmonellosis in Modern Society," *Medicine*, Vol. 52, No. 4, 1973, pp. 323-330.

<sup>1299</sup> BOH, *Minutes*, May 18, 1964, MHS, pp. 327-328.

<sup>1300</sup> *St. Paul Pioneer Press*, "MHD Reports on Chicken as Salmonella Source," February 18, 1987.

<sup>1301</sup> MDH, *Minnesota's Health*, Vol. 8, No. 6, June 1954, p. 2.

<sup>1302</sup> MDH, *Minnesota's Health*, Vol. 10, No. 3, March 1956, p. 1.

<sup>1303</sup> Henry Bauer, "Growing Problem of Salmonellosis in Modern Society," *Medicine*, Vol. 52, No. 4, pp. 329-330.

<sup>1304</sup>

<sup>1305</sup> BOH, *Minutes*, May 16, 1966, MHS, p. 242.



1980 – Sausages were the source of an outbreak in New Hope.<sup>1306</sup>

1989 – A salmonella outbreak was attributed to cheese.<sup>1307</sup>

1990 – Tomatoes, imported from out of state, were the suspected source of a Salmonella javiana outbreak.<sup>1308</sup>

1991 – Cantaloupe was the source of salmonella infection.

1994 – The contamination of Schwan's ice cream led to an outbreak of salmonella enteritis.

1994 – Toasted Oats cereal were contaminated.

### **Food Poisoning**

Between 1950 and 1960, more than 3,000 cases of food poisoning were reported to the department. Eleven were fatal. In May 1959, a custard-filled pastry that contained staphylococcus organisms caused an outbreak of 14 cases of food poisoning. In 1960, the department tried to get necessary legislation to develop an effective food sanitation program. The department had authority to regulate food establishments, but it didn't have enough funds to adequately run the program. More inspectors and inspections were needed.<sup>1309</sup>

### **Botulism Poisoning**

In the summer of 1960, two deaths in Minneapolis were attributed to fish vacuum-packed in cellophane. The severe hot weather contributed to this food spoilage. The Minneapolis Health Department conferred with the state departments of Health and Agriculture and the federal Food and Drug Administration, which thought botulism was the cause. Wholesale and retail distributors were directed to pull the fish from the shelves, and the public was told to destroy any they had purchased.<sup>1310</sup>

### **Hepatitis**

Cases of hepatitis, previously called jaundice, began increasing in Minnesota in the 1950s. There were more than twice as many cases of infectious hepatitis in 1954 as in 1953, and the numbers continued to rise:

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<sup>1306</sup> St. Paul Pioneer Press, "More Salmonella Victims Reported," August 6, 1980, p. 18.

<sup>1307</sup> St. Paul Pioneer Press, "Perpich Unhappy with Handling of Salmonella Scare," July 13, 1989, pp. 1A and 6A.

<sup>1308</sup> St. Paul Pioneer Press, "Confirmed Salmonella Cases Stands at 83," November 28, 1990, p. 2B.

<sup>1309</sup> MDH, *Minnesota's Health*, Vol. 14, No. 8, October 1960, p. 2.

<sup>1310</sup> BOH, *Minutes*, September 13, 1960, MHS, pp. 330-331.

| Infectious Hepatitis Cases and Deaths in Minnesota |                 |                    |
|----------------------------------------------------|-----------------|--------------------|
| Time Period                                        | Number of Cases | Number of Deaths   |
| 1934 - 1938                                        | 72              | 6                  |
| 1939 - 1943                                        | 380             | 5                  |
| 1944 - 1948                                        | 610             | 33                 |
| 1949 - 1953                                        | 2,071           | 45 <sup>1311</sup> |
| 1954 <sup>1312</sup>                               |                 | 7                  |
| 1953 - 1955 <sup>1313</sup>                        | 5,072           |                    |
| 1960 <sup>1314</sup>                               | 163             |                    |
| Jan to June 1961 <sup>1315</sup>                   | 998             |                    |

In the summer and fall of 1960, there was an outbreak of hepatitis in the Faribault School and Colony, introduced to the institution through one employee. From July 1960 to January 1961, 205 cases and two deaths were reported at the school. The outbreak received considerable media coverage, reporting 30 deaths. Dr. Dean Fleming thought the media might have exaggerated the situation. By January 1961 he thought the outbreak was fairly well under control, and there was no justification for the publicity it continued receiving.<sup>1316</sup>

Another disagreement with the media over the reporting of hepatitis outbreaks occurred in 1978 and raised questions about how much information the department should supply the public. In August, 95 people who had eaten at the Edina Country Club contracted hepatitis A.<sup>1317</sup> The following October, five employees and four customers of Mama Rosa's restaurant in Minneapolis became ill, leading to the closing of this restaurant. At first the department did not name the restaurants.

The department was criticized in a St. Paul Pioneer Press editorial for failing to name the restaurants in question early and thereby alerting the public to danger. The editorial commented on the department's decision: "The officials based their asinine action on, of all things, the State privacy act."<sup>1318</sup> The editorial further charged that to "...play games with a disease as serious as infectious hepatitis is outrageous."<sup>1319</sup>

Dr. Andrew Dean, the new state epidemiologist, responded that releasing the names of restaurants could be injurious to the health of the public, believing restaurants would report fewer cases if names were routinely released.<sup>1320</sup> The department decided not to

<sup>1311</sup> MDH, *Minnesota's Health*, Vol. 8, No. 7, July-August 1954, p. 4.

<sup>1312</sup> MDH, *Minnesota's Health*, Vol. 9, No. 2, February 1955, p. 4.

<sup>1313</sup> MDH, *Minnesota's Health*, Vol. 20, No. 3, March 1966, pp. 2-3.

<sup>1314</sup> BOH, *Minutes*, July 11, 1961, MHS, p. 319.

<sup>1315</sup> Ibid.

<sup>1316</sup> BOH, *Minutes*, January 31, 1961, MHS, p. 35.

<sup>1317</sup>

<sup>1318</sup> *St. Paul Pioneer Press*, "Failing to Protect the Public," editorial, November 11, 1978, p. 14.

<sup>1319</sup> Ibid.

<sup>1320</sup> *St. Paul Pioneer Press*, "Hepatitis List Seen as Health Threat," November 25, 1978, p. 4.



release names and not to request a legal opinion on releasing names unless required to do so.<sup>1321</sup>

Other hepatitis outbreaks in Minnesota included:

1982 – Seven cases traced to a restaurant in Cook.<sup>1322</sup>

1982 – Hepatitis closes O' Gara's in West St. Paul.<sup>1323 1324 1325</sup>

From 1949 through 1999, the department pressed for good personal and community hygiene to protect individuals from hepatitis.<sup>1326</sup> In explaining the cause of one outbreak in 1978, Dr. Michael Osterholm said he wasn't certain how it was being transmitted but added, "Basically, it's caused by poor hygienic habits."<sup>1327</sup>

### **Encephalitis**

In September 1960 a four-year-old girl from Winona died of unknown causes. Four years later, frozen tissue from the girl was taken from the department's freezer and examined. California encephalitis was identified as the cause of the girl's death. This was the first known case of California encephalitis in Minnesota.<sup>1328</sup>

In 1966 there were 13 confirmed cases of encephalitis in Minnesota. Most occurred in Fillmore, Houston or Winona counties. All three counties are located in the southeastern portion of the state. In 1967 there were eight confirmed cases of encephalitis, with occurrences in Carver, Hennepin and Sibley counties. In 1969, there were seven cases, with reports now coming from Dakota and Ramsey counties.<sup>1329</sup>

In 1968 a second fatality from California encephalitis occurred. A six-year-old girl from Gilmore Valley, an area west of Winona, died. Because of these deaths, in 1969 the department began taking blood samples from persons in Winona and the surrounding area. The department expected to find California encephalitis antibodies in the blood of a small percentage of people, indicating they had contracted the disease. The department had not expected the high number of positive test results as it found. In Gilmore Valley nearly one out of every three people over 10 years old had California encephalitis antibodies in their blood.<sup>1330</sup> Based on these findings, the department worked with physicians in Winona to try to identify more cases.

<sup>1321</sup> *St. Paul Pioneer Press*, "Health Officials Won't Seek Opinion on Hepatitis," November 28, 1978, p. 32.

<sup>1322</sup> *St. Paul Pioneer Press*, "7 Cases of Hepatitis Traced to Former Restaurant in Cook," June 9, 1982, p. 11.

<sup>1323</sup> *St. Paul Pioneer Press*, "Hepatitis Cases Linked to Cook, O' Gara's West Closes," June 9, 1982, p. 11.

<sup>1324</sup> *St. Paul Pioneer Press*, "5 More Cases of Infectious Hepatitis Diagnosed," June 10, 1982, p. 1.

<sup>1325</sup> *St. Paul Pioneer Press*, "6 More Cases of Infectious Hepatitis Reported," June 10, 1982, p. 1.

<sup>1326</sup> MDH, *Minnesota's Health*, Vol. VI, No. 4, April 1952, p. 2.

<sup>1327</sup> *St. Paul Pioneer Press*, "Hepatitis Among Food Handlers Rises," November 2, 1978, p. 1.

<sup>1328</sup> *Minneapolis Tribune*, "Sleep Disease Find Startles Health Aides," July 10, 1969, pp. 1A and 4A.

<sup>1329</sup> *Ibid.*

<sup>1330</sup> *Minneapolis Tribune*, "Sleep Disease Find Startles Health Aides," July 10, 1969, pp. 1A and 4A.

The high number of mosquitoes in Minnesota places the state at greater risk for encephalitis. In the 1960s it was considered endemic in certain areas of the state. To help reduce the risk of encephalitis, areas were sometimes sprayed to eliminate mosquitoes. In the fall of 1975, the Red River Valley was sprayed extensively with Malathion in populated areas by the state and federal governments. Areas that could not be sprayed were provided with information on mosquito management. Health Commissioner Dr. Warren Lawson wrote, "However, it is not possible to determine for certain if the spraying decreased the number of human cases of mosquito-borne encephalitis that might have otherwise occurred."<sup>1331</sup>

In 1978, encephalitis cases continued to be reported in Minnesota and Wisconsin.<sup>1332</sup>  
<sup>1333</sup> Surveillance for evidence of the California encephalitis group virus continued in the southeastern portion of the state.<sup>1334</sup>

In August 1983 the department became very concerned that conditions in western Minnesota were conducive to a large number of western equine encephalitis cases. As a result, the largest spraying effort in the nation occurred in Minnesota in August 1983.

*(Note: This mosquito spraying effort is described in Chapter 13.)*

## **Meningitis**

An outbreak of bacterial meningitis occurred in Mankato in 1995.<sup>1335</sup>

## **Other Outbreaks in the State**

Some of the other outbreaks in Minnesota are listed below.

| Year | Disease     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1951 | Shigellosis | An outbreak occurred at the Institution for the Mentally Retarded. About 150 patients were affected; most were bedridden and fed by other patients. <sup>1336</sup>                                                                                                                                                                                                                                                                                                                                                         |
| 1952 | Ringworm    | An outbreak of at least 30 cases occurred in the East Grand Forks schools. <sup>1337</sup> Dr. C.B. Nelson and other personnel from the department investigated. Working with the community nurse, local health officer, and family physicians, they set up control measures. The community nurse used a wood lamp to check children. Suspected cases were referred to family physicians. When it became apparent that the outbreak was extensive, treatment centers were set up in two schools and personnel were employed |

<sup>1331</sup> Letter from Dr. Warren Lawson to Sen. Hubert Humphrey, October 31, 1975.

<sup>1332</sup> St. Paul Pioneer Press, "Four Sick Because of Mosquito – Encephalitis," August 10, 1978, p. 41.

<sup>1333</sup> St. Paul Pioneer Press, "New Cases of Encephalitis Studied – Dr. Hall," August 12, 1978, p. 18.

<sup>1334</sup> E.S. Hurwitz et al., "Surveillance for California Encephalitis Group Virus Illness in Wisconsin and Minnesota, 1978," *American Journal of Tropical Medicine Hygiene*, Vol. 32, No. 3, May 1983, pp. 595-601.

<sup>1335</sup> B. Siegel, "Meningitis Outbreak: Mother Nature Sends a Scary Message," *Medical Economist*, Vol. 72, No. 16, August 21, 1995, pp. 173-186.

<sup>1336</sup> BOH, *Minutes*, July 23, 1951, MHS, pp. 218-219.

<sup>1337</sup> MDH, *Minnesota's Health*, Vol. VI, No. 10, November 1952.

|               |                       |                                                                                                                                                                                                                                                                                                                                                            |
|---------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |                       | to run them. The local health officer deputized the clinic physician to manage the epidemic and to see all infected children. Children in grades 1-9 were checked at the detection center once a month. <sup>1338</sup>                                                                                                                                    |
| 1953          | Trichinosis           | An outbreak of at least eight cases occurred in St. Charles. Persons became ill after eating homemade pork sausage. <sup>1339</sup>                                                                                                                                                                                                                        |
| 1957          | ECHO-9                | Between August 1 and October 14, more than 600 people were affected by a similar ailment. The laboratory ran numerous tests and identified the illness as ECHO-9 virus. The cause of the outbreak was identified by the tissue culture method for isolating viruses. It wasn't until 1954 that the laboratory was able to isolate viruses. <sup>1340</sup> |
| 1957          | Legionnaire's Disease | Minnesota was the first state to document an outbreak of Legionellosis. <sup>1341</sup> It occurred at a meat packing plant in Mankato. <sup>1342</sup>                                                                                                                                                                                                    |
| 1957          | Influenza             | One of the most devastating outbreaks occurred in 1957. A total of 18,100 cases of "Asian flu" were reported. <sup>1343 1344</sup>                                                                                                                                                                                                                         |
| 1963          | Reye's Syndrome       | A case occurred in Olmsted County.                                                                                                                                                                                                                                                                                                                         |
| 1963 and 1964 | Influenza             | In 1963, there were 795 cases and 89 deaths from influenza. In 1964, there were 356 cases and 88 deaths. <sup>1345</sup>                                                                                                                                                                                                                                   |
| 1968          | Influenza             | "Listening posts" were activated at Worthington, Rochester, St. Cloud, Thief River Falls, Fergus Falls, Duluth and Crookston. <sup>1346</sup>                                                                                                                                                                                                              |
| 1975          | Lyme Disease          | A case was reported in Olmsted County. <sup>1347</sup>                                                                                                                                                                                                                                                                                                     |
| 1976          | Influenza             | The possibility of holding swine flu clinics was discussed. <sup>1348</sup> The department agreed to provide the vaccine. <sup>1349</sup> Later, a vaccine link to disease was indicated. <sup>1350</sup>                                                                                                                                                  |
| 1979          | Legionnaire's Disease | Wabasha County                                                                                                                                                                                                                                                                                                                                             |
| 1979          | Parasites             | Outbreak in Goodhue Schools                                                                                                                                                                                                                                                                                                                                |
| 1979          | Head Lice             | An outbreak occurred throughout the state. <sup>1351</sup>                                                                                                                                                                                                                                                                                                 |

<sup>1338</sup> MDH, *Minnesota's Health*, Vol. VII, No. 4, April 1953, p. 2.

<sup>1339</sup> Ibid., p. 3.

<sup>1340</sup> MDH, *Minnesota's Health*, Vol. 11, No. 10, December 1957, pp. 2-3.

<sup>1341</sup> Abram S. Benenson, editor, *Control of Communicable Diseases Manual*, American Public Health Association, 16<sup>th</sup> Edition, 1995, p. 256.

<sup>1342</sup> Michael Osterholm, et al. "A 1957 Outbreak of Legionnaires' Disease Associated with a Meat Packing Plant," *American Journal of Epidemiology*, Vol. 117, No. 1, January 1983, pp. 60-67.

<sup>1343</sup> MDH, *Minnesota's Health*, Vol. 20, No. 3, March 1966, p. 2.

<sup>1344</sup> MDH, *Minnesota's Health*, Vol. 11, No. 10, December 1957, p. 3.

<sup>1345</sup> MDH, *Minnesota's Health*, Vol. 20, No. 3, March 1966, p. 2.

<sup>1346</sup> BOH, *Minutes*, January 9, 1968, MHS, p. 23.

<sup>1347</sup> E.L. Matteson, et al, "Epidemiology of Lyme Disease in Olmsted County, MN, 1975-1990," *Journal of Rheumatology*, Vol. 19, No. 11, November 1992, pp. 1743-1745.

<sup>1348</sup> St. Paul Pioneer Press, "Swine Flu Clinics to Be Discussed," June 24, 1976, p. 18.

<sup>1349</sup> St. Paul Pioneer Press, "Health Agency Committed to Swine Flu Fight," September 9, 1976, p. 35.

<sup>1350</sup> St. Paul Pioneer Press, "Swine Flu Program Hated While Disease Link Probed."

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|------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1979 | Measles               | Cases were reported in Brainerd, Hibbing, Cold Springs, and West St. Paul.                                                                                                                            |
| 1980 | Influenza             | Shakopee schools closed due to illness, possibly flu.                                                                                                                                                 |
| 1980 |                       | Unknown illness closes St. Luke's in February.                                                                                                                                                        |
| 1983 | Psittacosis           | Outbreaks are widespread throughout the state.                                                                                                                                                        |
| 1983 | Lyme Disease          |                                                                                                                                                                                                       |
| 1986 | Listeriosis           | Affected ice cream is recalled.                                                                                                                                                                       |
| 1987 | Mumps                 | The number of reported cases was down to less than 10 a year when an outbreak occurred. Eighty-four cases were reported by February. Most were in St. Paul Highland Park High School. <sup>1352</sup> |
| 1988 | Acute diarrhea        | NWA flight                                                                                                                                                                                            |
| 1990 | Measles               | Outbreak occurs among Amish population.                                                                                                                                                               |
| 1994 | Influenza             | Pineapple at Governor's Mansion                                                                                                                                                                       |
| 1995 | Strep                 | Four deaths occurred in Goodhue County.                                                                                                                                                               |
| 1995 | Legionnaire's Disease | Outbreak reported in Luverne and Mankato.                                                                                                                                                             |
| 1997 | Campylobacteriosis    | Outbreak reported in chickens.                                                                                                                                                                        |
| 1997 | Parasites             | Drinking fountain water at Minnesota Zoo infects children.                                                                                                                                            |

### **Illnesses Related to Meat**

In the 1980s and 1990s several illnesses were linked with hamburger, processed meat and beef:

1985 – Thyroid ailments resulted in beef recall

1988 – Bacteria linked to hamburger in Coon Rapids

1990 – HUS illness (hemolytic uremic syndrome) linked to undercooked beef

1997 – Recall on Hudson Food Company ground beef

1999 – Listeria Monocytogene linked to processed meat

<sup>1351</sup> St. Paul Pioneer Press, "Head Lice are Becoming Itchy Story in State," p. 9.

<sup>1352</sup> St. Paul Pioneer Press, "Major Rise in Cases of Mumps Reported," February 4, 1987, pp. 1A and 4A.

## **Other Illnesses**

Other significant illnesses reported during the 50-year period included:

1952 – Rocky Mountain Spotted Fever: A seven-year-old Minnetonka boy died of Rocky Mountain spotted fever in 1952, the first fatal case since 1931.<sup>1353</sup>

1955 – “Silo-Filler’s Disease”: In 1955 three deaths occurred in men ages 43, 31 and 28 who had all been exposed to silage. A new illness, silo-fillers disease, was identified. The same gas that caused the deaths of persons at the Cleveland Clinic and the Memorial Hospital in New York in the 1920s, when x-rays caught fire, caused the deaths. Farmers were warned to stay away from silos during and shortly after filling them.<sup>1354</sup>

1996 – Mad Cow Disease

1989 – L-tryptophan contributed to blood disease/death

## **Epidemiologists**

In 1949 the primary Health Department team conducting outbreak investigations consisted of Dr. Dean Fleming, disease prevention division director, and Dr. C. Barton Nelson, epidemiology section head. Dr. Fleming retired in 1975 and Dr. Nelson retired in 1982. From 1984 to 1999 the state epidemiologist position was held by outgoing and visible Michael Osterholm, Ph.D.<sup>1355</sup> He and his team gained an international reputation for hunting down food-borne outbreaks.

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<sup>1353</sup> MDH, *Minnesota’s Health*, Vol. VI, No. 7, September 1952, p. 3.

<sup>1354</sup> MDH, *Minnesota’s Health*, Vol. 10, No. 7, August-September 1956, p. 2.

<sup>1355</sup> *St. Paul Pioneer Press*, “Osterholm’s New Job Title: CEO,” February 5, 1999, pp. 1A and 16A.