

Lawsuit Involving Source of Hepatitis Outbreak

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In April 1970 I served as an expert witness in a lawsuit based on the contention that several persons contracted infectious hepatitis from a polluted well which an Iowa landlord negligently provided for a tenant's use. A district judge, ruling against the plaintiff, concluded that it was more probable that the illnesses resulted from unsanitary conditions in the home and environs and from human contact rather than from well water.

Circumstances Leading to the Judgment

The defendant owned an old frame house on farmland which was incorporated into a city. During the winter of 1965-66 the defendant constructed a shallow well and a septic tank to service the home. The septic tank was 35 feet from the well, although the State plumbing code requires a distance of no less than 50 feet. The defendant helped install the septic tank, and he was aware that water from a

new well should be tested before its use. He did not have the water tested.

Before the summer of 1968, the defendant leased the property to family A—a man, his wife, and several children. Mrs. A's sister, Mrs. B, and her two children, aged 8 and 9, visited family A three or four times during July 1968. At that time a physician had treated several of the A children for infectious hepatitis.

Late in July 1968 the B children became ill, and their physician diagnosed their disease as infectious hepatitis. None of the physicians who diagnosed the disease and treated these children visited the premises leased to family A.

After the physicians reported the cases of infectious hepatitis in the two families, the city health inspector visited the premises and collected water samples. The water analyst completed the presumptive and confirmed tests for total coliforms, setting up five tubes with 10 milliliter portions of each test sample. In both sets all samples were positive, showing an infinite most probable number index. The bacteriological report, which showed the water was unsafe, was forwarded to the local public health officials.

Mr. B, father of the visiting children who con-

tracted hepatitis, brought suit against the owner of the property seeking a total award of \$50,000. Mr. B charged the defendant was negligent in providing unsafe water to the tenant. To be successful, Mr. B had to prove negligence, proximate cause of his children's illnesses, and damages.

About a year after the outbreak, I was asked to guide the landlord's attorneys in the defense of this suit. In this capacity, I visited the premises, collected water samples from the well, and had the interior and exterior of the premises photographed.

Evidence Presented in Court

The case was heard nearly 21 months after the hepatitis outbreak. The physicians testified that the children had infectious hepatitis, and their direct testimony indicated that one cause of this disease is polluted water. The city's water inspector testified that the water in the well contained coliforms in excess of the number considered acceptable and that the water was unsafe for human consumption. I, on direct examination, and the physicians, on cross examination, testified that infectious hepatitis can also be transmitted by personal contact and by exposure to unsanitary conditions, including human discharges.

The water analyst, in cross examination, testified that the analysis of the water at the time of the outbreaks was incomplete, since only the presumptive and confirmed tests had been done. Results of these tests indicated strong probability of coliform organisms in the well. However, the tests performed did not differentiate between fecal and nonfecal coliforms, since no attempt was made to differentiate between *Escherichia coli* and *Aerobacter aerogenes*. Testimony by the water analyst indicated that the presence of fecal coliforms would have to be demonstrated to establish reasonably that the hepatitis might have been transmitted via the water.

I then discussed the results of tests of the water samples which I had collected a year after the outbreak. The well was still in use, and health authorities had taken no action—either to prohibit use of the water or to alleviate its pollution—on the basis of any of the unsafe samples. The samples I collected had been submitted to two laboratories, including the State hygienic laboratory, with the request that they be analyzed both for total coliforms and for fecal coliforms. Results of these tests showed an infinite number of total coliforms but no fecal (*E. coli*) organisms, thereby indicating that it would have been improbable for the hepatitis to have been transmitted from the water to the children.

The photographs of the premises, both inside and out, showed that the property was maintained in

a filthy and deplorable condition. The judgment of the case indicated that "the pictures are sickening to view. Flies, human wastes, and feminine hygienic material are strewn around. I doubt if the place is fit for hogs to live in."

Conclusions of Law

The plaintiff had to prove negligence, proximate cause, and damages. The judgment concluded that the defendant's negligence was proved. The well and septic tank were too close together in violation of the Plumbing Code of Iowa, and the defendant failed to have the water tested for safety although he knew it should have been done before the well was used.

However, Mr. B had not established "proximate cause." A person can be negligent to another, but unless the negligence causes harm there is no liability. The plaintiff could only recover damages which were proximately caused by the contaminated water. Thus the issue at law became "Was the hepatitis due to bad water or to human contacts and contamination from things in the house?" The judge found that the "plaintiff's medical testimony indicates no more than the fact that contaminated water can be a source of infectious hepatitis. The City Inspector did not complete the final tests on the water but did label the water as bacteriologically unsafe. However, he did not require the well to be capped.

"On the other hand, we have the positive testimony of the professor that the well was insulated insofar as fecal coliforms were concerned and also we have demonstrative proof from the photographs that the home was maintained in a filthy and deplorable condition. . . . I conclude from the evidence that it is more probable that the youngsters' illnesses were caused from the unsanitary conditions in the home and environs and from human contact rather than from well water. It is, therefore, unnecessary to consider damages as plaintiff cannot recover."

Lessons for Health Officials

The outcome of this lawsuit indicates that it is imperative that public health officials completely inspect the premises where contact with infectious hepatitis is supposed to have occurred. Because infectious hepatitis can be transmitted by interpersonal contact under filthy conditions as well as from water, such inspections are necessary to determine the most probable source of the disease.

In analyzing water to determine whether it is the vehicle for transmitting a disease, specific tests should be conducted to demonstrate the presence or absence of fecal coliforms. Presumptive and confirmed tests for total coliforms do not provide positive proof that water is the probable mode of transmission of a disease.