A Foodborne Outbreak of Shigellosis on an Indian Reservation

WILLIAM WHEATLEY, R.S., M.P.H., and JOSEPH B. VANDER VEER, Jr., M.D.

FOODBORNE OUTBREAKS of shigellosis are not often reported in the U.S. literature. In 1967 a total of 273 foodborne outbreaks from all causes was reported to the National Communicable Disease Center, Public Health Service (*1*). Of these, only seven (2.2 percent) were attributed to the *Shigella* species. Much more common were outbreaks due to *Salmonella*, *Clostridium perfringens*, and *Staphylococcus*. In only two of the seven *Shigella* outbreaks was the vehicle designated as food (unnamed), in two it was water, and in the remaining three it was unknown. Several reports in earlier literature specified food as the vehicle for *Shigella* outbreaks, including three in which potato salad was implicated (*2–4*).

Shigellosis, via all modes of transmission, is prevalent on Indian reservations. During the last 6 months of 1967, the reported attack rate among Indians was 171.5 per 100,000 or 52 times the reported attack rate for the entire U.S. population, which was 3.3 per 100,000 (*5*).

An outbreak of shigellosis occurred in April 1968 after a church dinner on the Yakima Indian Reservation. Potato salad was identified epidemiologically as the vehicle of infection and *Shigella flexneri* as the etiological agent. The serotype responsible for the outbreak is unknown.

Both Mr. Wheatley and Dr. Vander Veer were at the Yakima Indian Health Center, Public Health Service, Toppenish, Wash., at the time of the investigation. Mr. Wheatley is now a staff sanitarian in the Office of Environmental Health, Indian Health Service, Washington, D.C. Dr. Vander Veer is in residency at the University of Oregon Medical School, Portland.

Demographic Data

The Yakima Indian Reservation includes about 1 million acres in the south central part of Washington State. Part of the reservation lies within the fertile Yakima Valley, an irrigated agricultural area with several large towns where many of the 4,500 reservation Indians reside. In the two principal towns of Toppenish (5,800) and Wapato (3,200), Indians are a minority of the population.

Several agencies give health care to the Yakima Indian Nation. In Toppenish, the Yakima Indian Health Center houses a medical and a dental clinic and supports a field health staff including a sanitarian, a public health nurse, a social worker, and a health educator. Hospitalizations of the Indians are arranged through contract with local physicians, who also care for many Indian patients during nights and weekends. Most Indian patients are hospitalized at Central Memorial Hospital in Toppenish; a few are admitted to the two larger hospitals in Yakima, off the reservation. The Yakima County Health Department supplies additional public health nursing and sanitation services. Most of the Indian homes on the reservation have wells and inside toilets with septic

tank systems, which were constructed under Public Health Service sanitation facility projects.

White Swan, a community of 300 residents, of whom about half are Indians, is 20 miles inside the reservation. It has three stores, a school, and several churches, including two of an Indian nativistic religion that is most prevalent among the tribes of Washington, Oregon, and California. In such churches on the Yakima reservation, a potluck dinner customarily follows each Sunday service.

Symptoms of Disease

On Sunday, March 31, 1968, the White Swan Indian church held a dinner after the regular service. Attendance was larger than normal because the birthday of a church member was being celebrated. Approximately 125 persons ate at the church between 1 and 3 p.m. Several varieties of food were served, many of which had been prepared in homes and brought to the church.

On Tuesday, the second day after the dinner, an elderly Indian woman visited a local physician because of fever, vomiting, stomach cramps, and diarrhea. She was hospitalized. On the following day, three Indian women were hospitalized by other physicians for similar symptoms. On Wednesday and Thursday, other patients visited the Indian Health Center with the same symptoms, a few with bloody diarrhea. Fifty patients were treated by health center and local physicians. Ten patients, two of whom were severely ill (a child with a congenital heart lesion and an elderly woman), required hospitalization, but no deaths occurred. Several cultures of stool specimens were obtained before a common-source outbreak was suspected.

Investigation of Source

After a number of patients with gastroenteritis had been treated at the Indian Health Center, the clinic physician suspected a foodborne outbreak when he learned that two patients had attended the church dinner. He alerted members of the center's field health staff, who arranged to meet at the hospital Friday morning, April 5.

The health center director, sanitarian, and public health nurse interviewed the first four patients, all women, hospitalized with the illness. These women said they had not attended the dinner, and because their illness kept them from giving adequate histories no definite common source or infection could be identified.

The sanitarian then visited the families of two of the hospitalized women, where he learned that the two women had attended the church dinner as had the other two hospitalized women. By the time the sanitarian returned to the health center, several more people who had attended the dinner and had the same symptoms had arrived for treatment. Food histories and stool specimens of these patients were obtained for culturing before they were treated. Tentative food-specific attack rates calculated Friday night indicated that potato salad and turkey were the most suspected vehicles of the outbreak.

On Saturday the Indian Health Center sanitarian and public health nurse and the Yakima County Health Department sanitarian visited the church and the woman who had prepared much of the food. She stated that she had suffered vomiting, cramps, and diarrhea on the Thursday before the dinner. She had been treated with antibiotics at the health center on Friday and felt well enough by Saturday to prepare food for the dinner.

Questioning of the cook revealed that she either had prepared or had direct contact with every food capable of supporting a *Shigella* outbreak. On Saturday afternoon, she had boiled potatoes for the salad and had drained and placed them in a bowl on a counter in her home. She boiled eggs early Sunday morning in her kitchen and drained and placed them in a plastic bag and left them on the counter. She then took the potatoes and eggs to the church, where her daughter-in-law helped mix the salad at approximately 10 a.m. Other ingredients of the salad were onions and fresh mayonnaise from a jar that was opened when the salad was mixed. The salad was left at room temperature for approximately 3 hours until the meal was served at 1 p.m. The daughter-in-law did not eat the food and did not become ill, nor had she previously experienced the typical symptoms. Her husband and two children ate the dinner and became ill. One had a stool culture that was positive for *S. flexneri.*

Three turkeys with dressing also were prepared by the cook. Two were roasted through-

out Saturday night at her home and were removed from the oven about 8 a.m. Sunday morning. They were wrapped in aluminum foil, with dressing still inside the turkey, and left at room temperature until served. The cook started roasting a third turkey Sunday morning at home and transferred it to the church oven around 10 a.m., where it continued to bake until it was served. She sliced the turkeys for serving.

The kitchen at the cook's home did not have adequate facilities for preparing large amounts of food. A water sample from her well, which was a considerable distance from the septic tank and drainfield and had little possibility of contamination, was satisfactory. The well was properly constructed, and no additional samples were taken.

The church kitchen and equipment were in poor repair; the investigators considered them to be completely inadequate for sanitary preparation, storage, or serving of food. Several privies on the church grounds were not protected against flies or rodents. The only sink in the kitchen was used for washing both hands and dishes. A tapwater sample was satisfactory by the standard *Escherichia coli* test, and the location and construction of the well were adequate. No leftover food was available for cultures because 6 days had elapsed since the meal, and the Indians customarily divided the leftover food among those who attended the dinners.

The investigators attempted during the week of April 8 through 12 to locate and interview the persons who had attended the meal, but they were unable to arrive at a precise count. The master list included 122 persons; 17 did not eat the food and did not become ill. The 105 remaining persons ate varying amounts and types of food; 60 of them became ill—an attack rate of 57.1 percent. Food histories of 72 were obtained (see table); 44 had been ill. Of the 33 persons from whom food histories were not obtained, 26 were children. Neither the children nor their parents could accurately recall what foods they had eaten.

Specimens for culture were obtained from 26 patients, some after their symptoms had subsided and others after they had been treated.

Results

The following tabulation gives morbidity data on the persons known to have attended the meal.

Category	*Number attending meal*
Total	122
Did not eat meal and were not ill	17
Ate meal and were ill	60
Food history	44
No food history	16
Ate meal and were not ill	45
Food history	28
No food history	17

Vulnerable foods and calculated attack rates are listed in the table. As shown by the attack rates, potato salad was the most probable vehicle promoting the shigellosis outbreak. Turkey was a possible but less likely vehicle. Calculations of the P values were made by the chi-square test, at the χ^2 0.99 level, to determine the significance of the attack rates for

Gastroenteritis attack rates for 72 persons according to food histories

Vulnerable foods	Persons eating				Persons not eating			
	Ill	Well	Total	Percent ill	Ill	Well	Total	Percent ill
Baked salmon	11	3	14	78	33	25	58	57
Dried salmon	2	1	3	67	42	27	69	61
Indian roots	7	3	10	70	37	25	62	60
Elk roast	3	3	6	50	41	25	66	62
Boiled potatoes	5	5	10	50	39	23	62	63
Potato salad	39	6	45	87	5	22	27	18
Stew	14	16	30	47	30	12	42	72
Boiled corn	14	3	17	82	30	25	55	55
Lima beans	2	1	3	67	42	27	69	61
Turkey	37	14	51	73	7	14	21	33
Dressing	9	6	15	60	35	22	57	61
Kool-aid	15	4	19	79	29	24	53	55

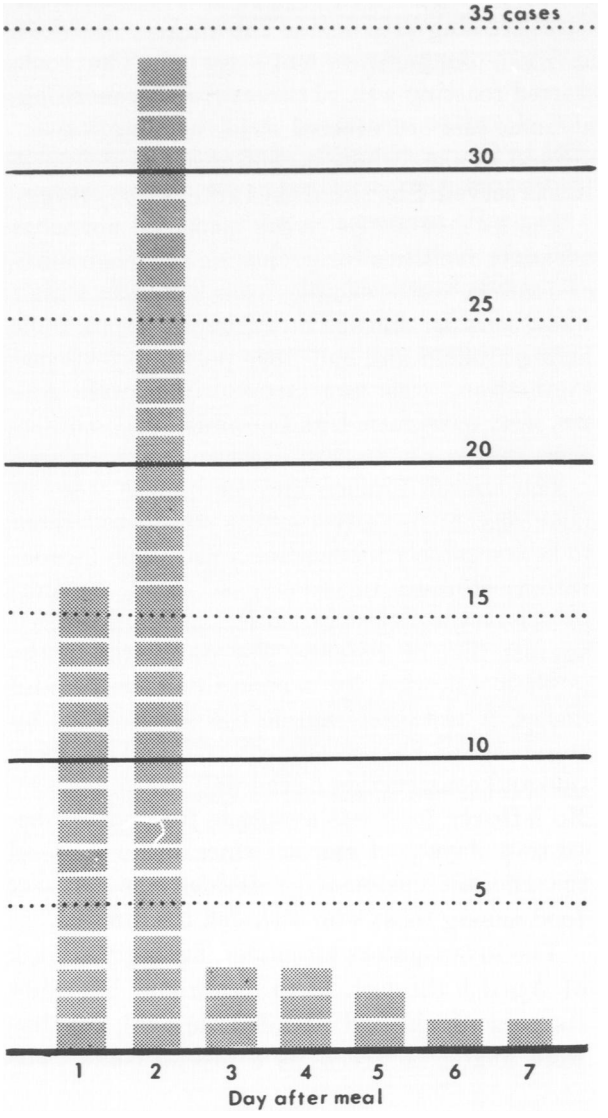
potato salad and turkey. The P value for potato salad was 32.99 and for turkey, 9.51, both of which were significant.

The number of cases of gastroenteritis by day of onset of illness since eating the meal is shown on the chart. Mean time of illness onset after eating was approximately 48 hours, which supports the hypothesis of an infective agent rather than a toxin and is within the incubation period for shigellosis.

The following tabulation shows the results obtained on the 26 cultures. Five of the negative cultures were from victims treated with antibiotics before the specimen was obtained.

Results	*Number of cultures*
Total	26
Positive for *Shigella flexneri*	17
Positive for *Shigella sonnei*	1
Negative	8

Cases of gastroenteritis by day of onset since eating the meal



Discussion

This foodborne outbreak of shigellosis probably was due to contamination of potato salad by a woman who was convalescing from a *Shigella* infection. The attack rates indicate that turkey, one of the foods she prepared, also may have been contaminated. These foods were implicated by a well-accepted epidemiologic tool, calculation of attack rates. The cook is known to have associated just before her illness with a woman who had diarrhea and whose stool culture was positive for *S. flexneri*. A friend of the cook, who also associated with the same woman, became ill with similar symptoms, but her culture was negative. The cook's method of preparing the food was conducive to contamination, and the period of storage before the meal afforded ample time for incubation.

Three factors (facilities, knowledge, and enforcement) are the key to preventing such an outbreak. The facilities for preparing food for a group of this size, both at the church and at the cook's home, were inadequate. Other places on the reservation used for large gatherings (namely, the "long" houses) have more adequate facilities, and tribal funds are used to improve or supplement these facilities. Private groups like the Indian churches do not have this advantage. The practice of using inadequate home facilities for preparing food is not unique to Indians; this problem contributes to many similar outbreaks of disease.

Lack of knowledge of safe food handling practices among the Indian population contributed greatly to this outbreak of shigellosis. Breakdowns in food handling practices are common at most celebrations. Public Health Service workers on the Yakima Indian Reservation have had some success in fostering good food-service practices, but progress is slow and resistance to the effort is strong.

The Yakima reservation presents unusual jurisdictional problems, as do most Indian

reservations, since it is not subject to State or local law and no specific Federal regulations are binding; therefore, recommendations of the Public Health Service cannot be enforced. The tribal code does not include specific regulations concerning food sanitation at Indian gatherings so recourse to tribal authority is impossible. The most effective approach to prevention of disease currently lies in persistent education.

Summary

An outbreak of shigellosis occurred in April 1968 after a church dinner on the Yakima Indian Reservation in the State of Washington. Potato salad was identified epidemiologically as the vehicle of infection and *Shigella flexneri* as the etiological agent.

Public health workers from the Yakima Indian Health Center and the Yakima County Health Department interviewed the woman who had prepared much of the food. She had suffered vomiting, cramps, and diarrhea on Thursday before the dinner. On Friday she had been treated with antibiotics at the health center and by Saturday felt well enough to prepare food.

Saturday she had boiled potatoes, drained them, and placed them in a bowl on a counter in her home. Early Sunday, the day of the dinner, she had boiled eggs and followed the same procedure. She then took the potatoes and eggs to the church, where her daughter-in-law helped mix the salad at approximately 10 a.m. Other ingredients of the salad were onions and fresh mayonnaise from a jar that was opened when the salad was mixed. The salad was left at room temperature for approximately 3 hours until the meal was served.

Investigation of the foodborne outbreak led to finding 60 cases of shigellosis in a total of 105 persons known to have eaten the suspected meal—an attack rate of 57.1 percent. Food histories were obtained from 72 persons who attended the dinner. Stool specimens from 26 persons were cultured: 17 specimens were positive for *S. flexneri*, one for *Shigella sonnei*, and eight were negative.

REFERENCES

(1) National Communicable Disease Center: Morbidity and Mortality Weekly Report. Vol. 17, No. 16, Apr. 20, 1968.

(2) Ehrenkranz, N. J., et al: An epidemic of *Shigella sonnei* arising in a general hospital. New England J Med 259: 375–377 (1958).

(3) Kaiser, R. L., and Williams, L. D.: Tracing two bacillary dysentary outbreaks to a single food source. Penn Med J 65: 351–354, March 1962.

(4) San Bernardino County Department of Public Health: Report of physicians, San Bernardino, Calif., August 1964.

(5) National Communicable Disease Center: Shigella surveillance. Rep No. 15, Atlanta, Ga., May 17, 1968.

Program Notes

Catching Up on Education

The New York State Department of Mental Hygiene conducts a catch-up high school education program for nearly one-third of its employees. Sixteen thousand employees do not have a high school diploma, and 1,221 of these employees are currently attending 60 classes at 29 of the department's institutions. Classes to prepare employees for the high school equivalency examination are held twice a week for 25 weeks at each institution. Teachers from local high schools are the instructors.

The department pays all costs of the classes, and each student pays a $6 fee for the equivalency examination to the New York State Department of Education. Any employee with a sixth grade achievement score on a standard test may enter the high school courses. For those with lower scores, the department offers pre-equivalency classes on employee time.

"Hippie Hepatitis" Increasing

Reported cases of serum hepatitis in Detroit, Mich., increased in 1968 to nearly six times the number in 1967. Many of these cases are referred to as "hippie hepatitis," according to Dr. George Pickett, public health director, because they are the direct result of a drug addict's giving blood to raise the money he needs to support his habit. Under special circumstances, Pickett explained, the blood from addicts may cause the death of a person who receives it in a blood transfusion. There were 12 such deaths in Detroit in 1968. And, he added, there seems to be no letup in 1969.

Would-be blood donors are excluded if they report they have received a transfusion within the preceding 4 to 6 months or have ever had hepatitis. Persons with a history of hepatitis can also be detected by certain tests, said Dr. Willard R. Lenz, director of the division of epidemiology. But carriers of the virus who are not themselves ill with the disease are harder to spot.

The ultimate answer, most physicians agree, is a vaccine, Lenz stated. The earliest prediction for a usable vaccine, however, is about 1976. Therefore health officials have joined with other city and school officials in an all-out effort to curb the abuse of drugs.

Computerized Water Pollution Data

The hundreds of man-hours invested by the State of Pennsylvania in making a complete water quality inventory of its streams to pinpoint known sources of pollution and provide detailed information on existing and needed waste treatment facilities will soon pay rich dividends. The State plans to make the data from the inventory available instantly through a statewide computerized water pollution network.

The network, which will be operational within 2 or 3 years, is designed to tighten enforcement of the State's clean streams law by providing instant information for use in locating sudden surges of pollution, investigating known polluters, and keeping track of enforcement actions of the State's sanitary water board. Federal aid in the amount of $252,601 covers the costs of the first year of the program.

Radiation Accidents

The Bureau of Radiological Health, Consumer Protection and Environmental Health Service, Public Health Service, has conducted two special courses in radiation accident management at the request of the California State Health Department.

The courses, given under the bureau's training and manpower development program, were held in Redwood City, March 10–14, and in Pasadena, March 17–21, 1969. Course participants, who all had responsibility for planning and dealing with various aspects of radiation emergencies, included officials from the State health, police, and fire departments and from civil defense units and other public service agencies.

A mock motor vehicle accident involving radioactive materials and a simulated radioisotope laboratory accident were included in the laboratory sessions of the course. Trainees also solved accident-situation problems.

Health Care for New City

A voluntary program of prepaid, comprehensive medical care is to be developed by Johns Hopkins University and Johns Hopkins Hospital at Columbia, Md., the new city being built in Howard County. The aim of the program is to work out new methods of delivering high-quality health care to a defined population at a reasonable cost.

The project will require construction at Columbia of a hospital and related clinics, which will be operated by the administrative and medical staff of the Johns Hopkins medical institutions. Howard County health agencies and physicians are helping plan the program.

Persons will be enrolled in the plan by health insurance carriers. The schedule of benefits for enrollees will probably include hospital and physician services and outpatient diagnostic services, as well as physician visits and other followup care in the home, periodic physical examinations, and psychiatric and maternity benefits.

Amounts of the insurance premiums are expected to be within the range of presently available health insurance. It is hoped that services can be offered to members by late 1969 and that the first stage of hospital construction—60 beds—will be completed by July 1971.

Items for this page: Health departments, health agencies, and others are invited to share their program successes with others by contributing items for brief mention on this page. Flag them for "Program Notes" and address as indicated in masthead.

phr synopses

SORENSEN, ROYAL H. (Veterans' Administration Hospital, Fresno, Calif.) and CASAD, DONALD E.: *Use of case survey technique to detect origin of* Blastomyces *infections. Public Health Reports, Vol. 84, June 1969, pp. 514–520.*

Available literature on this subject shows that North American blastomycosis is one of few infectious diseases for which the ecology remains unknown. Because of antigenic nonspecificity, the immunological techniques which were successful in mapping the endemicity of histoplasmosis and coccidiodomycosis have been of no help in blastomycosis. The problem is further complicated by the sporadic incidence of this disease, the ofttimes long delays in diagnosis, and the inability to isolate the fungus from its natural habitat.

An extensive survey revealed that in 37 cases of North American blastomycosis observed in California, 33 patients were infected elsewhere. The survey provides strong evidence that this fungus is not a natural inhabitant of California.

Similar surveys have been conducted recently in West Virginia, Wisconsin, and North Carolina—States known to be endemic for North American blastomycosis. We suggest that the survey method be used widely as a means of more precisely establishing *Blastomyces* endemicity.

KOGAN, B. A. (County of Los Angeles Health Department), NAKAGAWA, H., HANES, B., and HEIDBREDER, G. A.: *Attitudes of health department clients toward an error in immunization. Public Health Reports, Vol. 84, June 1969, pp. 521–526.*

Desiccated measles virus had inadvertently not been mixed with sterile water diluent at a Sunday mass immunization clinic held in one community of Los Angeles County in 1966. Thus, 467 children from 209 families received sterile water injections. In promptly correcting the error, all known susceptible children of the 209 families were immunized.

The Los Angeles County Health Department also arranged for followup interviews with 181 mothers of the 209 families involved to determine their attitudes about the error and to learn what kind of families attended the clinic. A second group of families, sample B, was drawn from among those attending a measles immunization clinic on a following Sunday. A comparison of the demographic characteristics of the families in these two samples indicated that they were similar, and therefore sample B was used as a control.

Reactions to the mistake were predominantly negative, but the blame that was expressed was not primarily directed toward the health department. Moreover, those parents who responded negatively readily completed the vaccination of their children. In contrast, many of the parents who said that they were reassured by the explanation of the vaccination error failed to follow up on referrals to a second vaccination clinic until they had been visited a considerable number of times by health department personnel.

Demographic comparisons revealed that the families in both samples who attended the measles clinics were a select group, not characteristic of the total community. They were better educated and had higher incomes and lower unemployment rates. The special measles clinics failed to reach the neediest children.

SAWYER, JOHN C. (U.S. Department of Agriculture), SCHANTZ, PETER M., SCHWABE, CALVIN W., and NEWBOLD, MILTON W.: *Identification of transmission foci of hydatid disease in California. Public Health Reports, Vol. 84, June 1969, pp. 531–541.*

Epidemiologists in the School of Veterinary Medicine, University of California, Davis, found an appreciable level of hydatid (*Echinococcus granulosus*) infection—4.8 percent—in 22,720 ewes examined at slaughter in northern California during 1967–68. Heavily infected lots of sheep were traced by their lot numbers to Idaho and Utah and to eight ranches in four counties of California. On one California ranch, two cases of hydatid disease in human beings, at least one of them autochthonous, were disclosed. Seven of 17 sheep dogs examined on four of these California ranches were positive for *E. granulosus*. Transmission foci of hydatid disease have thus been identified for the first time in California and possibly for the first time in the United States exclusive of Alaska. All the owners of the infected premises were Basques or persons of Basque descent.

phsynopses

WAGNER, MARSDEN G. (University of California School of Medicine and School of Public Health, Los Angeles), HELLER, MARIAN H., LEVIN, LOWELL S., and SHULTZ, CARL S.: *School physicians' views of relations with medical and nonmedical agencies. Public Health Reports, Vol. 84, June 1969, pp. 542–546.*

One hundred nine school physicians in a large urban school health service answered a questionnaire that included items concerning their school-community relationships. The school nurses were asked the same questions to provide an index for reliability of data.

More than half of the physicians stated that they contacted family physicians and other members of the medical community less than every third physician session. A physician session is a 3-hour half-day in school. The physicians stated that they contacted the nonmedical community less than every fourth physician session. School nurse responses were similar in all instances.

Correlations between these behaviors and a number of attitudinal questions showed significant correlations among higher than average contacts with all elements of the community and several opinions suggesting that the medical and nonmedical community were important in the school health programs. This set of behaviors and attitudes in turn correlated with that for physicians not presently in private medical practice and not preferring private practice but rather practice in public health programs. Apparently there is a continuum among school physicians regarding their relationships to the community. At one end is a group of physicians having very little contact with the community and largely engaged in private practice when not working as a school physician. At the other end is a group of physicians that has more contact with the community and thinks such contact is important and helpful and prefers working in the public health setting.

The school physician brings with him a set of attitudes and behaviors toward the community that strongly influences his behavior toward the community as a school physician. With regard to school health services, a private-practice-oriented physician is not oriented toward the community and does not conduct a public-health-oriented service including community contact if such behavior is optional.

BRAYMEN, DONALD T. (National Animal Disease Laboratory, Ames, Iowa): *Survival of micro-organisms in aerosols produced in cleaning and disinfecting. Public Health Reports, Vol. 84, June 1969, pp. 547–552.*

This study was made to determine the size of aerosolized particles produced by cleaning walls with a sprayer or brush, and to determine the number of viable organisms in the aerosol when different detergents or disinfectants, or both, were used in the cleaning solution.

Suspensions of *Staphylococcus aureus, Serratia marcescens, Mycobacterium smegmatis*, T–3 coliphage, and *Bacillus subtilis* spores were incorporated separately into artificial soiling material which was then painted on a wall surface and dried. Either disinfectant or detergent solutions, or both, were applied with a high-pressure sprayer or a stiff-bristled brush to clean the wall. The concentration in the room air of particles 10μ or less in diameter that contained viable micro-organisms was determined.

Substantial numbers of each of the micro-organisms were recovered from the room air when water, a quaternary ammonium compound, and three phenolic disinfectants were employed as cleaning agents. No T–3 coliphage and smaller numbers of the other micro-organisms, except *B. subtilis*, were recovered from the air when sodium hypochlorite solution was the disinfectant.

Peracetic acid solution was the most effective in reducing the concentration of aerosolized micro-organisms including the bacterial spores. One phenolic disinfectant was effective in reducing the concentration of viable aerosolized *M. smegmatis*. Assay of the aerosols disclosed that approximately 50 percent of the particles were of a suitable size (5μ or less) to remain airborne indefinitely and could pose a potential disease hazard when inhaled by a susceptible host.

The results of the study indicate that criteria for evaluating the effectiveness of disinfectant solutions for surface application against a specific micro-organism cannot be applied to an aerosol containing the same micro-organisms.

ph synopses

FINKLEA, J. F. (Medical College of South Carolina), SANDIFER, S. H., PITTS, O. M., and RAVENEL, J. M.: *Susceptibility to epidemic rubella in a college population. Public Health Reports, Vol. 84, June 1969, pp. 559–562.*

Two rubella epidemics at the Citadel, a military college in South Carolina, provided an opportunity to assess the cadets' susceptibility to rubella from midway in the 1957–64 national epidemic cycle to 4 years after the 1964 epidemic peak. Just before the peak, 20.6 percent of an entering class cohort was found to be susceptible to the disease as compared with only 9.7 percent of the cohort that entered the college the following year. At midpoint in the epidemic cycle, the susceptibility of the class cohorts was estimated to be 14.0 percent. The epidemic threshold in this semi-closed population lay between 4.7 and 8.4 percent. The estimates of susceptibility were confirmed by serologic testing.

MAYNARD, JEAN M. (Rhode Island Department of Health), TIERNEY, JOHN T., O'NEILL, RITA, and DEUTSCH, ALLAN M.: *Cervical screening with the Davis pipet on a door-to-door basis. Public Health Reports, Vol. 84, June 1969, pp. 553–557.*

In August 1967, a cervical cytological screening pilot study was initiated by the Rhode Island Department of Health. Four health aides from a neighborhood health center were sent, after being briefed as to the requirements of the program, on a door-to-door campaign in one census tract of the inner city of Providence with a high mortality rate from cancer of the cervix.

The health aides explained the use of the Davis cyptopipet to the women in their homes, waited for the specimens to be collected, and brought them back to the center.

From the 161 women contacted in the pilot study, 68 specimens (42 percent) were collected of which five showed atypical cells. The refusal rate was 13 percent; 44 percent could not participate for legitimate reasons, such as menstruation, pregnancy, or sexual intercourse or a douche within 24 hours.

The program was then extended to all nine neighborhood health centers of Progress for Providence, an Office of Economic Opportunity program, and by May 15, 1968, a total of 417 women had participated. Fifty-three percent of these women had never had a Papanicolaou smear. Atypical smears were discovered in 17 women; only two of these women had had previous Papanicolaou smears. All women with atypical results were followed, and medical care was provided as necessary.

WHEATLEY, WILLIAM (Public Health Service), and VANDER VEER, JOSEPH B.: *A foodborne outbreak of shigellosis on an Indian reservation. Public Health Reports, Vol. 84, June 1969, pp. 563–567.*

An outbreak of shigellosis occurred in April 1968 after a church dinner on the Yakima Indian Reservation in the State of Washington. Potato salad was identified epidemiologically as the vehicle of infection and *Shigella flexneri* as the etiological agent.

Public health workers from the Yakima Indian Health Center and the Yakima County Health Department interviewed the woman who had prepared much of the food. She had suffered vomiting, cramps, and diarrhea on Thursday before the dinner. On Friday she had been treated with antibiotics at the health center and by Saturday felt well enough to prepare food.

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