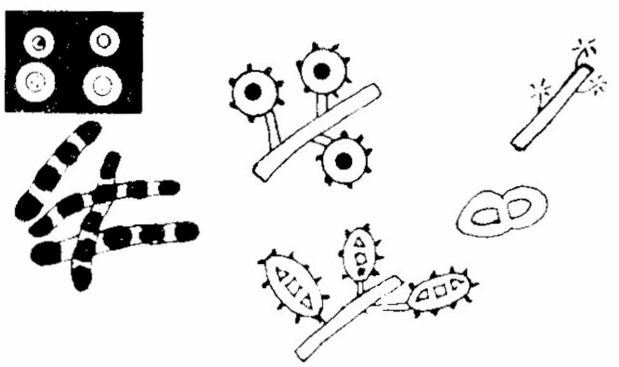
OCTOBER 1970 – NO. 2

CENTER FOR DISEASE CONTROL

MYCOSES

SURVEILLANCE



U S DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE | PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

LAND WC 450 C397 no. 2 1970

Mycoses surveillance.

PREFACE

The systemic fungal diseases are not included among the reportable diseases in many states. It is, therefore, difficult to assess the true size of the mycoses problem. This report summarizes presently available information with the hope that it may stimulate more active reporting of these diseases.

Information presented here is received from state and local health departments and other pertinent sources and is intended primarily for use by those responsible for disease control activities. Much of the information is preliminary. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to this report are welcomed. They should be addressed to:

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service

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I. SURVEILLANCE

A. Reported Cases and Deaths

During 1968, 1,200 cases of five systemic mycoses were optionally reported to the Public Health Service by 22 states (Table 1). The greatest number of states reporting cases was in the Mississippi-Ohio River valleys.

Coccidioidomycosis was the most frequently reported disease. Arizona and California reported the most cases, and together they accounted for 99 percent of the 990 coccidioidomycosis cases. Histoplasmosis was reported by 14 states, more than any other mycosis. It accounted for 158 cases and, as expected, most were reported from the Mississippi-Ohio River valleys.

The next most frequently reported diseases were cryptococcosis (16 cases), blastomycosis (14 cases), and actinomycosis (9 cases). Other fungal diseases specified in state reports were nocardiosis (4 cases), geotrichosis (1 case), and sporotrichosis (1 case). The other seven reported infections were of unspecified etiology.

Histoplasmosis led the list of reported deaths due to systemic fungal diseases with 67 deaths in 1967 (Table 2), the latest year for which information is available. (Data on deaths is from *Vital Statistics of the United States*, published by the National Center for Health Statistics, and is based on death certificates). Cryptococcosis was second with 65 deaths.

B. Fungal Serology

Figures on fungal serology testing by state and territorial public health laboratories during fiscal year 1968 are shown in Table 3. Most laboratories perform several tests on each specimen submitted. A positive result is usually considered to be evidence of active disease or recent infection. Data from these laboratories should provide a more accurate measure of the incidence of fungal infections in reporting states since reporting of cases is not required by most states. Some duplication is inherent in this data since a single case may have several specimens tested during the period of illness. Also, because of cross-reactions, some specimens may be positive to the antigens of more than one fungus.

During fiscal year 1968, public health laboratories performed 121,630 serologic examinations with 10,016 positives. The greatest number was for histoplasmosis, with 30 states reporting 61,435 tests and 6,322 positives.

II. DECONTAMINATION AND CONTROL

A. State and Local

From January through August 1970, state and local health departments have requested assistance in the investigation of five blackbird-starling roosts considered to be possible reservoirs of histoplasmosis.

1. Topeka, Kansas

A blackbird-starling roost of 2.5 acres harbored an estimated 880,000 birds in suburban Topeka. It had been active for at least 10 years. Soil samples taken from the site were cultured, and 6 of 21 grew *H. capsulatum*. Because the roost was adjacent to a residential area, it was considered to be a public health threat and decontamination was recommended. The site was subsequently treated with a 3 percent formalin solution using city fire and street department equipment and personnel. Samples taken after treatment are being processed.

2. Delaware, Ohio

An epidemic of histoplasmosis in children drew attention to a junior high school courtyard in Delaware, Ohio. The courtyard, which has two large trees which served as a blackbird roost, was raked and swept by students as a part of Earth Day activities in late April. About two weeks later, school absenteeism rose by 300 percent. Serologic tests on 214 students yielded 79.4 percent positive (CF titer $>1{:}64$ or positive agar gel precipitin band), and a skin test survey revealed positivity rates at the junior high school to be 14.9 times higher than at elementary schools and 5.1 times higher than at the senior high school. *H. capsulatum* was grown in cultures of 4 soil samples from the courtyard. Decontamination procedures have been carried out with 3 percent formalin.

3. Lee's Summit, Missouri

An active blackbird-starling roost of about .6 acre in Lee's Summit, Missouri, a suburb of Kansas City, was becoming a nuisance due to the commotion caused by an estimated 30,000 roosting birds. The site had been used as a bird roost for 4 years. The birds were driven from the roost by local authorities, and soil samples

taken from the site were found to contain *H. capsulatum.* A decision to decontaminate the roost is pending.

4. Springfield, Missouri

Three bulldozer operators became ill with acute histoplasmosis while working in a former bird roost in Springfield, Missouri. The roost of more than 20 acres harboring an estimated 1,000,000 blackbirds, starlings, and grackles, had been active longer than 5 years. Work on the site has been halted while the area is investigated and soil from the area cultured.

5. Springfield, Ohio

Investigation of two blackbird roosts, one two acres and one five acres in area, has been requested by local health authorities. Soil samples have been taken and are being processed.

B. U.S. Fish and Wildlife Service

The Federal Fish and Wildlife Service requested assistance in evaluating a number of bird roosts in Missouri, Arkansas, Ohio, Tennessee, Alabama, and Georgia, for the presence of *H. capsulatum.* The roosts under investigation will be used subsequently for studies by the Section of Animal Depredation Control Studies of the Fish and Wildlife Service.

III. COOPERATIVE MYCOSES STUDY

A. Statistical Summary

The CDC Cooperative Mycoses Study entered 93 new cases during 1968 (Table 4). A total of 1117 cases has been entered since its inception in 1958 (Table 5). The Cooperative Study is a joint venture by physicians and hospitals in several states, in cooperation with the Kansas City Laboratories, Ecological Investigations Program, CDC, to evaluate chemotherapy in the treatment of systemic mycotic infections.

B. Summaries of Reports

The following are summaries of two recent papers from the study.

"The Treatment of Chronic Pulmonary Histoplasmosis." A CDC Cooperative Mycoses Study report prepared by James A. Parker, M.D., George A. Sarosi, M.D., Irene L. Doto, M.A., Raymond E. Bailey, M.S., and Fred E. Tosh, M.D. New England Journal of Medicine; 283:5, July 30, 1970.

Of 408 patients admitted to the Cooperative Mycoses Study between 1957 and 1964, 238 were treated initially with amphotericin B only, 43 with pulmonary surgery plus amphotericin B, 27 with pulmonary surgery alone, and 100 were not treated.

Among the patients receiving amphotericin B alone and the patients who were not treated, death was directly related to the age of the patient at diagnosis and, in the treated group, the stage of the disease prior to therapy. Death was inversely related to the total initial dose of amphotericin B in the treated group. Significantly fewer deaths occurred among patients who received dosages in excess of 35 mg/kg of body weight than among those who received less. There were significantly fewer deaths in the group treated with amphotericin B alone than in the untreated group (Figures 1 and 2). There was no difference in relapses or deaths between the surgical groups and the group receiving amphotericin B alone.

It is recommended that all patients with chronic pulmonary histoplasmosis be treated with at least 35 mg/kg of body weight of amphotericin B. The necessity for surgical therapy of residual cavities has not been proven.

"Chronic Pulmonary Coccidioidomycosis." A CDC Cooperative Mycoses Study Report prepared by George A. Sarosi, M.D., James D. Parker, M.D., Irene L. Doto, M.A., and Fred E. Tosh, M.D. New England Journal of Medicine; 283: 7, August 13, 1970.

A review of 109 cases of proven coccidioidomycosis revealed 20 patients whose chest films and clinical findings were indistinguishable from either chronic pulmonary histoplasmosis or chronic pulmonary tuberculosis. The fungal cause of the disease was determined in many patients after they had been thought for years to be suffering from tuberculosis. *Coccidioides immitis* was grown from the sputa of 18 of 19 patients, and 14 of 15 had positive coccidioidin complement fixation tests. The best therapeutic results were obtained with intravenously administered amphotericin B in a total dose of at least 30 mg/kg of body weight.

IV. SPECIAL REPORTS

A. Fatal Histoplasmosis- Vermillion County, Indiana

Two fatal cases of acute histoplasmosis, initially reported as probable tularemia, occurred in Vermillion County, Indiana.

The two patients, while on a visit to a farm on September 28, 1969, shot a squirrel and handled it extensively. Three days later the first patient, a 24-year-old man, had symptoms of upper respiratory infection. On October 5, he had fever and shortness of breath and was hospitalized with a diagnosis of pneumonia. His temperature was 103.8 F, WBC was 18,000 per mm^3 with 83 percent polymorphonuclear cells, and chest X-ray showed pneumonic infiltrate of the right lung. He was treated with penicillin, but the pneumonia worsened, and on October 8 he was given streptomycin, cephalothin, and chloramphenicol. He died on October 9.

The second patient, a 23-year-old man, was hospitalized on October 8 with a 1-day history of severe dyspnea, cough, profuse diaphoresis, chills, fever, and myalgia. Chest X-ray showed multinodular infiltrates in both lungs. He was initially treated with ampicillin, then within 12 hours received tetracycline with a reduction in fever. Twenty-four hours later he was given streptomycin. Despite initial improvement, he continued to have daily spiking fever and dyspnea and developed erythematous papular skin rash. He died with a tension pneumothorax after 1 month of hospitalization.

A delayed hypersensitivity tularemia skin test of the second patient was read as positive on October 19 although a serum agglutination test was negative at that time. The skin test was later re-evaluated and interpreted as negative because a skin biopsy showed no lymphocytic infiltration characteristic of a positive delayed hypersensitivity reaction.

At autopsy, lung tissue from the first patient showed histoplasma organisms by methanamine silver stain. Complement fixation (CF) and antibody precipitin tests performed on serum after five days of illness were negative. The second patient at autopsy also had histoplasma organisms present in pathologic sections of lung as well as in liver, spleen, and kidney. The organisms fluoresced with fluorescein-tagged antibody against *Histoplasma capsulatum.* In addition, the second patient had a positive CF test, in high titer, to histoplasmosis, which rose slightly during his illness. Between the second and third weeks of illness his serum developed an M-band precipitin (one of five precipitins which may develop from histoplasma antigenic exposure) consistent with an immunologic response to active *H. capsulatum* infection. Yeast organisms were grown from a bone marrow culture taken one day prior to the second patient's death.

Review of the patients' activities in the three weeks preceding their illnesses revealed that they were together only at a common place of work and during the visit to a Vermillion County farm on September 28, where they had shot and handled a squirrel. The farm is located in an area endemic for histoplasmosis. Absence of clinical illness in 47 of the patients' fellow employees and the lack of a positive CF titer for histoplasmosis in the one employee who was ill during the time the patients were hospitalized made airborne infection at work unlikely. Histoplasma skin tests and/or CF titers on sera from three other persons who accompanied the patients on their visit to the farm were positive. One of these persons had lived on this farm and raised chickens until she vacated it nine months prior to the September 28 visit; she had a high CF titer to histoplasmosis and an M-band precipitin. It is not known whether the patients had entered a chicken house on the farm during the visit.

Two of eight soil samples taken from the chicken house on the farm and none from a probable bird roost near the farm grew histoplasma organisms when cultured. Soil samples from two other areas where the patients might have been independently exposed to histoplasmosis did not grow *H. capsulatum.*

(In part from *Morbidity and Mortality Weekly Report,* Vol. 18, No. 43, P. 377, October 25, 1969, and Vol. 18, No. 49, Dec. 6, 1969. Reported by John Batchelder, M.D., Marvin Melton, M.D., and other members of the medical staff, St. Vincent's Hospital; Robert Costen, M.D., Earl Brown, M.D., and other members of the medical staff, University Heights Hospital, Indianapolis; J.W. Sommerville, M.D., Health Officer, Vermillion County; Mr. Herald Demarree, Indiana Wildlife Biologist, Indiana Department of Natural Resources; Herman Rinne, D.O., Director, Division of Communicable Disease Control, Indiana State Board of Health; four EIS Officers, and the Mycoses Section, Ecological Investigations Program, C.D.C.)

B. Outbreak of Histoplasmosis- Delaware, Ohio

During the first 2 weeks in May 1970, an outbreak of histoplasmosis occurred among students, faculty, and

staff of the junior high school in Delaware, Ohio. During this period the school absenteeism rate went from its usual baseline level of about 60 per day to a high of 245 per day (total enrollment of 872), necessitating closing of the school on May 8. This is the only junior high school in the city, and none of the five elementary schools, the senior high school, the parochial school, or the university noted any increase in school absenteeism during this time. None of 45 persons living on the blocks surrounding the school became ill with a similar illness, and physicians in the community reported no similar illness in persons unassociated with the junior high school.

A total of 294 out of 949 students, faculty, and staff at risk were ill enough to stay home from school during this period, and an additional 89 had significant symptoms but remained at school. Attack rates for the sixth grade were higher than those for the other two grades at the school and for the faculty. The illness was generally mild in nature and was characterized primarily by fever, malaise, headache, and chest pain. Other symptoms included myalgias, sore throat, coryza, nausea, vomiting, and anorexia. Cough occurred in about 60 percent of the cases, but was generally considered to be mild in nature, often appearing after the second day of illness. In about two-thirds of the cases the illness lasted a week or less, although in a few, illness was prolonged. Five patients were hospitalized. There were no deaths.

The cases by date of onset for 257 of the 294 persons with significant illness for whom date of onset could be established suggested a common source epidemic. Since water samples were shown to be free of coliform contamination and no common food source could be implicated, an airborne mode of spread was suspected.

Sera were obtained from 214 students at the junior high school and from 50 ninth grade control students at the senior high school. These were tested against a battery of common respiratory antigens. No difference in the two groups appeared except for the antibody levels for histoplasmosis. Complement fixation (using yeast phase and histoplasmin antigens) and gel diffusion techniques were employed. Of the 214 sera from junior high students, 174 (79.4 percent) were positive by these techniques (with a complement fixation titer of 1:64 or greater and/or a positive agar gel precipitin band), but none of the first 31 ninth grade control sera tested were positive. One hundred and eight of 123 junior high students who were ill (87.8 percent) and 62 of 91 (68.1 percent) who were not ill were positive by these criteria. Approximately half of the students in the school system were then skin tested for histoplasmosis; the positivity rate at the junior high school was 14.9 times higher than at the elementary schools and 5.1 times higher than at the senior high school.

To date, investigation has uncovered only one event which could be implicated as the source of exposure to histoplasma organisms for persons at this school. On April 22, 24, and 25 groups of students at the school had conducted a series of clean-up activities associated with Earth Day. These consisted of raking and sweeping in a courtyard which has been a known blackbird roost. The air intakes for the ventilation system are in this courtyard. In addition, sweeping and cleaning of the driveways and parking lots around the building, areas which are known to be contaminated with pigeon droppings, were also done. Large amounts of dust were raised during these activities. By use of air flow study techniques it was demonstrated that aerosols raised in these areas can be distributed throughout the building. Four soil samples from the courtyard were found to contain *Histoplasma capsulatum*. (See Decontamination and Control, p. 1.)

(From the *Morbidity and Mortality Weekly Report*, Vol. 19, No. 24, p. 242, June 27, 1970. Reported by Lloyd F. May, M.D., Health Commissioner, Delaware City and County Health Department; Delaware County Medical Society; John Ackerman, M.D., Chief, Bureau of Preventive Medicine, Charles Croft, Dr. Sc., Chief, and Howard Stegmiller, Principal Virologist, Bureau of Laboratories, Ohio Department of Health; and the Fungus Immunology Unit, Laboratory Division, C.D.C.; and a team from C.D.C.).

C. Outbreak of Sporotrichosis-Johnson County, Kansas

On January 9, 1970, the Johnson County Health Department reported that nine school age children were suffering from skin ulcers of several months' duration. The nine infected children, ranging in age from 9 to 15 years, were from five families living in a community of 14 families 10 miles west of Kansas City, Kansas. While most families derive their incomes from neighboring industrial and commercial areas, some are engaged in farming. The children were all in the same school district but, according to age, attended three different schools. Approximately 8 months prior to this investigation, a new state highway construction project was started in the area.

All patients gave a history of development of initial papular lesions in mid-November to mid-December 1969. These primary lesions evolved into pustules and then into ulcers during the following 2-3 weeks. At the time of the investigation in January, all of the patients had received antibacterial therapy with no beneficial effect, and only one had received specific therapy for sporotrichosis (oral potassium iodide).

Table 6 shows the cases by age, sex, distribution of lesions, and the results of culture attempts. All the patients had the lymphocutaneous form of sporotrichosis and none showed evidence of extracutaneous sporotrichosis. All the patients except one developed secondary subcutaneous nodules along the path of lymphatic drainage proximal to the primary lesions. The multiple lesions seen in three patients were felt to be primary lesions and not the result of ulceration of subcutaneous nodules since the lesions developed in unison.

After the diagnosis was established, each child received a full course of oral iodide therapy, and within 2 months all the ulcers were re-epithelialized.

The only common site of activity of the infected children was two large stacks of baled prairie hay, about 800 bales in all. This hay had been cut and baled in north-central Kansas and transported to a highway construction site in the neighborhood in early October 1969. The hay, intended for use as mulch, had not been treated or processed other than having been cut and baled.

Shortly after delivery of the hay, 27 children in the neighborhood started to play in it. They rearranged the bales so as to develop a series of caves and tunnels through which they crawled. The children played in the hay for 6 weeks (until about the time the first child developed skin lesions). Seven randomly chosen hay samples were obtained and processed for culturing. Three of the seven samples yielded *S. schenckii*.

A question survey of construction workers involved with the hay at the site and with prairie hay in general yielded no additional cases of sporotrichosis and none were detected in residents of the neighborhood.

This outbreak is the largest reported outbreak of sporotrichosis in children. Although coarse hay used as packing material in Mexico and soft meadow hay in New York State have been implicated as vehicles of infection, this is the first reported outbreak of sporotrichosis associated with prairie hay. The most common vehicles of infection are sphagnum moss, rose and barberry bushes, and mine timbers in one large outbreak in South Africa.

Although sporotrichosis is uncommon among children, one-third of all children who played in the hay at this site developed the disease. This suggests that children are as susceptible as adults, especially if they are adequately exposed to contaminated vegetable material. Of interest also is the fact that several of these children developed lesions in sites other than their extremities, while in adults these lesions are almost uniformly on their extremities.

(Reported by Bruce E. Hodges, M.D., Director, Johnson County Health Department, Olathe, Kansas; Edwin D. Lyman, M.D., Director of Health and Executive Secretary, State Department of Health, Topeka, Kansas; and the Mycoses Section, Ecological Investigations Program, C.D.C.)

V. MEETINGS

A. International Symposium on The Mycoses

The International Symposium on the Mycoses was held by the Pan American Health Organization (PAHO), February 24 to 26, 1970, in Washington, D.C. The symposium, attended by participants from 11 countries, reviewed the mycoses as a public health problem, diagnostic procedures, therapy, ecology and epidemiology, and discussed future directions for PAHO regarding the mycoses in the Americas.

The symposium suggested, in its Report to the Director, that compulsory reporting of the mycoses in member countries be encouraged, that recommendations for the standardization of diagnostic procedures and reagents be made, that training programs in medical mycology and bibliographic centers on medical mycology be encouraged, and that cooperative efforts between United States and Latin American institutions in training and research be fostered. Recommendation was also made for continuation of the scientific dialogue on medical mycology by means of additional international symposia at least every three years.

B. Second National Conference on Histoplasmosis

The Second National Conference on Histoplasmosis took place October 6 to 8, 1969, at the Center for Disease Control, Atlanta, Georgia. The Conference was sponsored by the University of Kentucky School of Medicine, the University of West Virginia School of Medicine, and the Center for Disease Control, with a grant from Lederle Laboratories.

Topics of the sessions included "The Organism – Histoplasma Capsulatum," "Ecology, Epidemiology, and Control," "Clinical and Pathological Aspects," "Diagnostic and Immunologic Methods," "Prevention and Treatment," and "Quo Vadis."

A resolution favoring required reporting of histoplasmosis was passed unanimously by the conference participants. The proceedings of the conference will be published by Charles C. Thomas.

FIGURE 1

Status of disease at yearly intervals after start of amphotericin B therapy in chronic pulmonary histoplasmosis.

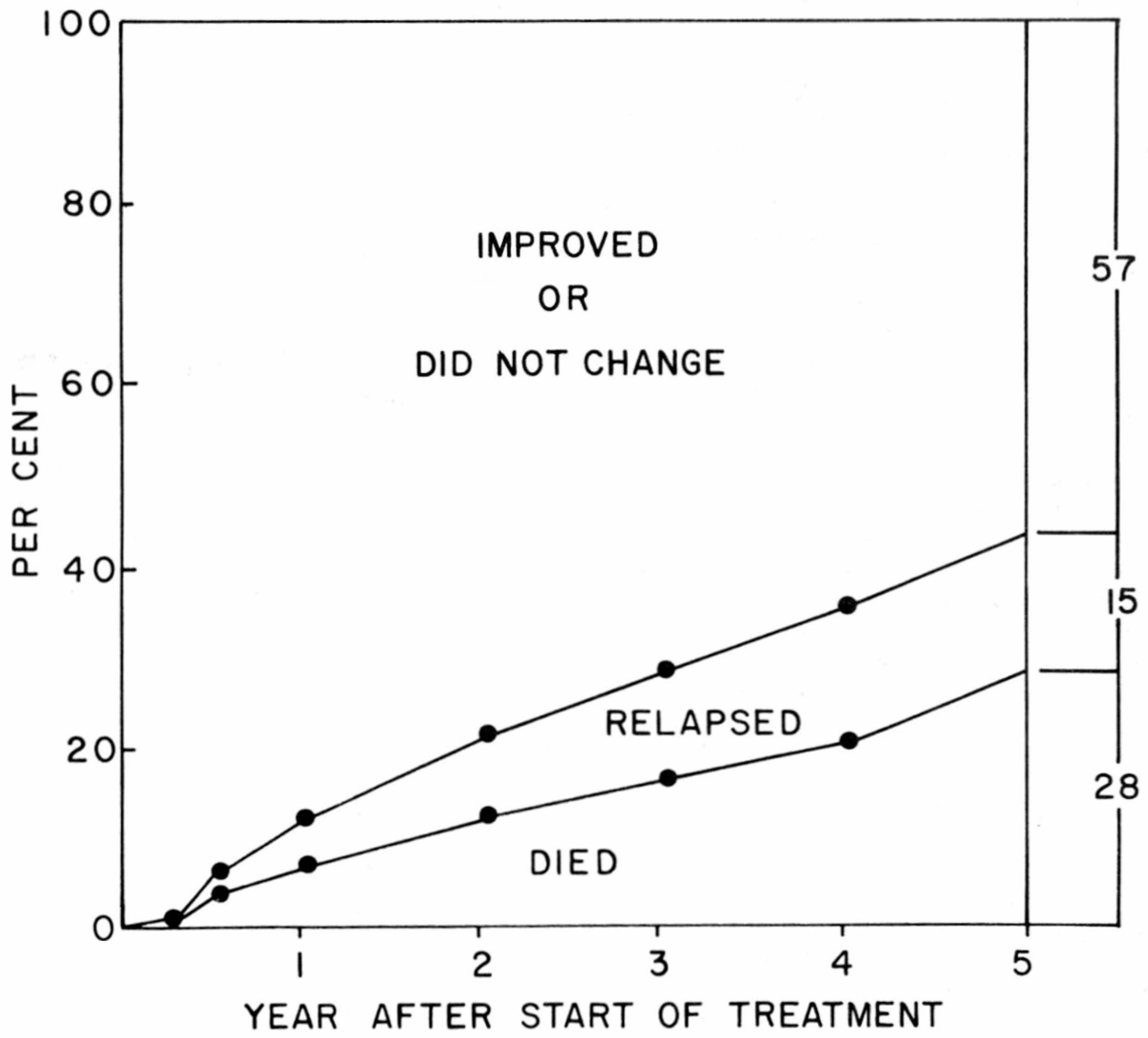

FIGURE 2

Status of disease at yearly intervals after diagnosis in untreated chronic pulmonary histoplasmosis.

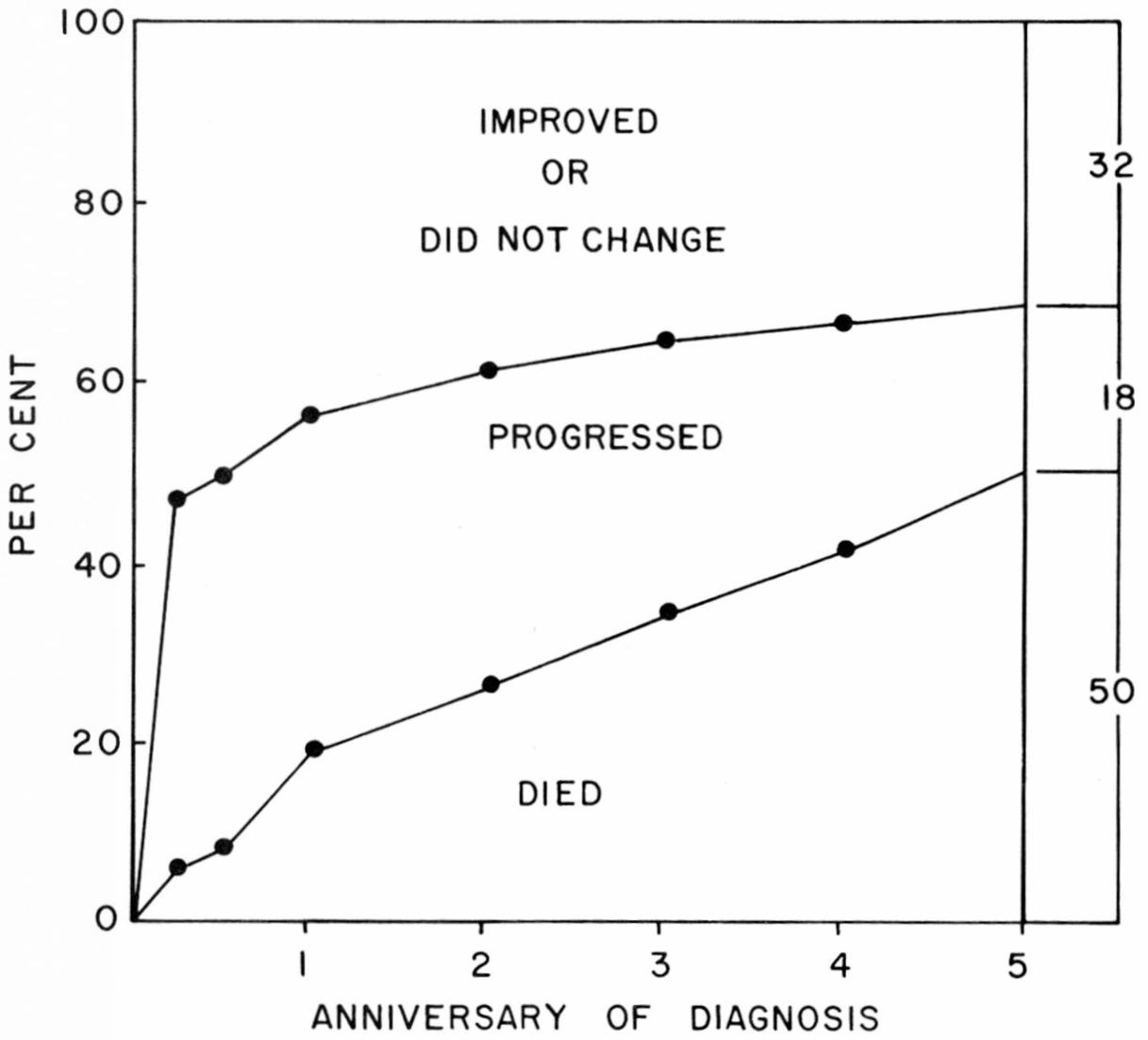

TABLE 1
MYCOTIC DISEASES OPTIONALLY REPORTED TO THE U.S. PUBLIC HEALTH SERVICE, 1968

State	Actino-mycosis	Blasto-mycosis	Coccidioido-mycosis	Crypto-coccosis	Histo-plasmosis	Other	Total
Arizona			555				555
Arkansas			1		3	1	5
California			427				427
Connecticut	1						1
D.C.					1		1
Florida		2		1	2		5
Hawaii			1				1
Illinois	2	1	1	3	49	6	62
Indiana					13		13
Iowa	2	2			33		37
Kansas					5		5
Louisiana	3	4		3	7		17
Minnesota	1		2	1	3	1	8
Mississippi				1	1		2
Missouri				4	6		10
Nebraska		1					1
New Mexico			1			1	2
Ohio		2			32		34
Oregon			2	1		3	6
Virginia		2			2		4
Washington				2		1	3
Wisconsin					1		1
No. of Cases	9	14	990	16	158	13	1200
No. of States Reporting	5	7	8	8	14	6	22

From CDC Morbidity and Mortality Weekly Report 17: 53, Annual Supplement, Summary 1968

TABLE 2
REPORTED DEATHS IN THE UNITED STATES FROM FIVE SYSTEMIC FUNGAL DISEASES, 1963 TO 1967

Disease	1967	1966	1965	1964	1963
Actinomycosis	28	21	26	31	35
Blastomycosis	17	12	29	21	24
Coccidioidomycosis	49	45	52	46	71
Cryptococcosis	65	90	62	74	73
Histoplasmosis	67	60	74	77	70

TABLE 3
FUNGAL SEROLOGY TESTING BY STATE AND TERRITORIAL PUBLIC HEALTH LABORATORIES; FISCAL YEAR 1968

STATE	TOTAL SPEC.	TOTAL EXAMS	TOTAL POS.	BLASTOMYCOSIS		COCCIDIOIDO-MYCOSIS		HISTOPLASMOSIS		OTHER	
				EXAMS	POS.	EXAMS	POS.	EXAMS	POS.	EXAMS	POS.
ALA.	1,293	5,172	217	1,293	49	1,293	5	2,586	163	–	–
ARIZ.	6,619	12,970	1,269	–	–	12,672	1,267	298	2	–	–
ARK.	*	4,756	409	1,189	113	1,189	14	2,378	282	–	–
CALIF.	*	12,328	1,234	–	–	5,366	672a	6,962	562	–	–
GA.	569	2,276	26	569	14	569	1	1,138	11	–	–
ILL.	4,060	11,998	1,045	1,930	253	1,955	9	8,113	783	–	–
IND.	1,310	4,019	431	1,309	86	90	1	2,620	344	–	–
IOWA	870	4,420	520	1,105	131	1,105	18	2,210	371	–	–
KANSAS	466	1,864	114	466	79	466	2	466	19	466	14
KY.	1,160	5,198	463	1,334	88	1,137	3	2,727	372	–	–
LA.	*	1,795	214	496	51	404	2	895	161	–	–
MD.	701	2,967	*	733	*	747	*	1,487	*	–	–
MICH.	*	6,198	*	2,066	*	2,066	*	2,066	*	–	–
MINN.	*	3,715	268	742	29	773	10	2,200	229	–	–
MISS.	1,642	5,006	488	1,642	121	80	–	3,284	367	–	–
MO.	991	3,964	421	991	119	991	9	1,982	293	–	–
MONT.	9	45	3	9	1	9	1	27	1	–	–
N.M.	*	27	*	–	–	15	*	12	*	–	–
N.Y.	*	3,102	*	1,206	*	204	*	1,206	*	486b	*
N.C.	*	1,033	46	305	22	131	–	597	24	–	–
OHIO	2,517	6,536	1,999	751	159	751	79	5,034	1,761	–	–
ORE.	*	171	9	57	–	57	3	57	6	–	–
PENN.	*	1,026	*	341	*	341	*	341	*	3b	*
S.C.	*	29	14	–	–	–	–	29	14	–	–
TENN.	2,757	5,514	147	–	–	–	–	5,514	147	–	–
TEXAS	*	10,449	392	2,612	155	2,614	38	5,223	199	–	–
VT.	31	93	–	–	–	31	–	62	–	–	–
VA.	964	2,892	189	964	47	964	–	964	142	–	–
W. VA.	73	244	11	51	1	61	–	132	10	–	–
WISC.	1,823	1,823	87	499	20	499	8	825	59	–	–
TOTALS	27,855	121,630	10,016	22,660	1,538	36,580	2,142	61,435	6,322	955	14

* No information reported
—No activity on report
a Positives not reported for 1,874 tests
b Cryptococcosis

States reporting no fungal serology activity were: Alaska, Colo., Del., Fla., Hawaii, Idaho, Me., Mass., N.H., N.J., N.D., R.I., Utah, Wash., and Wyo.
States not reporting were: Conn., D.C., Nev., Okla., and S.D.
Referred to CDC: Neb.

From Consolidated Annual Report on State and Territorial Public Health Laboratories, Fiscal Year 1968, and individual reports from states.

TABLE 4
CASES ENTERED IN CDC COOPERATIVE MYCOSES STUDY
JANUARY 1, 1968 THRU DECEMBER 31, 1968

STATE	HISTO	BLASTO	COCCI	CRYPTO	ASP	SPORO	TOTALS
Arkansas	5	3	1		1		10
Delaware					1		1
Illinois	1						1
Indiana		1		1	3		5
Kansas	3		1		6	3	14*
Kentucky	11	1			3		15
Missouri	13	2			6	1	22
Tennessee		3			2		5
Texas	8		4	4		1	18*
Virginia					2		2
TOTALS	41	10	6	5	24	5	93*

* Includes Allescheria boydii — Texas 1; and Nocardia brasiliensis — Kansas 1

TABLE 5

NUMBER OF CASES BY STATE IN THE CDC COOPERATIVE STUDY –
JANUARY 1, 1958 TO DECEMBER 31, 1968

STATE	BLASTO.	COCCI.	CRYPTO.	HISTO.	SPORO.	ASPER.	TOTAL	No. OF DIS. REPT.
ARIZ.		2					2	1
ARK.	15	4	2	92	1	1	115	6
CALIF.			1	2			3	2
DEL.			3	4		1	8	3
GA.				2			2	1
ILL.	4		3	26			33	3
IND.	3	2	4	39		3	51	5
IOWA	2	1	1	5			9	4
KANSAS	6	4	11	43	13	6	84*	7*
KEN.	21		1	141		3	166	4
LA.				5			5	1
MO.	17	5	11	264	6	6	309	6
NEB.		1		1			2	2
N.Y.				1			1	1
N.C.	2		1				3	2
OHIO	3			49	1		53	3
OKLA.		1	2	1			4	3
PENN.	1		1				2	2
S.D.	1						1	1
TENN.	15		6	63		2	86	4
TEXAS	3	79	11	57	1		152*	6*
VT.				2	6		8	2
VA.	3		1	10		2	16	4
W. VA.				1			1	1
WISC.	1						1	1
TOTALS	97	99	59	808	28	24	1117*	
No. OF STATES	15	9	15	20	6	8	25	

* Includes Allescheria boydii — Texas 1; and Nocardia brasiliensis — Kansas 1

TABLE 6

CLINICAL CHARACTERISTICS AND RESULTS OF CULTURE IN NINE CHILDREN WITH SPOROTRICHOSIS

CASE NUMBER	AGE	SEX	SITE OF PRIMARY LESION(S)	ADJACENT SUBCUTANEOUS NODULES	RESULTS OF CULTURE
1	10	F	Wrist	Yes	Not done
2	11	M	Forearm	Yes	S. schenckii*
3	11	F	Forearm	Yes	S. schenckii
4	15	M	Arm	Yes	Not done
5	9	F	Thigh (3 Lesions)	Yes	S. schenckii
6	13	M	Knee; below right eye (2 lesions)	Yes	Contaminated
7	13	M	Flank (beltline)	Yes	S. schenckii
8	15	M	Trunk (5 lesions)	Yes	S. schenckii
9	9	M	Scalp	No	S. schenckii

*Sporothrix schenckii