PREFACE

Information contained in this report is derived primarily from State Health Departments, and the National Morbidity and Mortality Reporting System. This information is preliminary and is intended primarily for those with responsibility for disease control activities. Anyone desiring to quote parts of this report is urged to consult the original investigators for confirmation and interpretation.

Contributions to the Leprosy Surveillance Report are most welcome. Please address to:

Center for Disease Control
Attn: Chief, Special Pathogens Section
Bacterial Diseases Branch
Epidemiology Program
Atlanta, Georgia 30333

Center for Disease Control . . . . . David J. Sencer, M.D., Director

Epidemiology Program . . . . . Philip S. Brachman, M.D., Director

Bacterial Diseases Branch . . . . . John V. Bennett, M.D., Chief

Special Pathogens Section . . . . . Roger A. Feldman, M.D., Chief

In Collaboration with:

U. S. Public Health Service Hospital
Carville, Louisiana . . . . . John R. Trautman, M.D., Director

Clinical Branch . . . . . Carl D. Enna, M.D., Chief

Leprosy Registry . . . . . Mrs. Marylyn Sturdivant

TABLE OF CONTENTS

DHEW Publication No. (HSM) 72-8095

LEPROSY SURVEILLANCE REPORT

I. SUMMARY

There were 233 cases of leprosy reported in the United States and Puerto Rico in 1969 and 1970; 87 percent of the cases (202) were reported from seven areas: California, Florida, Hawaii, Louisiana, New York City, Texas, and Puerto Rico. Of the 233 cases, 69 (29.6 percent) were in persons born in the United States and Puerto Rico, and 121 (51.9 percent) were in persons born in Mexico, Philippines, Cuba, and American Samoa. Lepromatous or dimorphous leprosy was diagnosed in 155 (68.3 percent) of the 227 patients whose clinical type was reported. In 198 instances, the diagnosis was confirmed by biopsy. Only 35 patients lacked biopsy confirmation. Ninety-six of the 233 patients were hospitalized at one of three USPHS hospitals offering specialized care of leprosy patients, while 137 were not hospitalized or were seen in medical school or general hospitals.

II. INTRODUCTION

The previous leprosy surveillance report, summarizing information for 1949-1968, was compiled from information available at the U. S. Public Health Service Hospital Leprosy Registry, Carville, Louisiana, and from state epidemiologists. Starting in January 1970, all cases of leprosy have been reported by state epidemiologists to the Center for Disease Control in both the weekly morbidity telegram and on a national leprosy surveillance form used for this report. Not included in this report is information on patients who entered the United States solely for specialized treatment at the U. S. Public Health Service Hospital at Carville, or non-resident, transient individuals who, once diagnosed, left the country.

III. CASES 1969 - 1970

Information was received on 233 cases of leprosy, reported in 1969 and 1970 (113 cases in 1969 and 120 cases in 1970) (Table 1). The incidence for 1969 and 1970 of 0.056 and 0.058 cases per 100,000 population respectively, are little changed from the annual incidence in the United States from 1949-1968 (Figure 1). The peak incidence for this period (1968) represented the result of an unusual effort (the compilation of the first leprosy surveillance report) to report what might otherwise have been unreported cases. Sixty-nine of the 233 cases (29.6 percent) were in persons born in the United States and Puerto Rico. An additional 121 (51.9 percent) were in persons born in Mexico, Philippines, Cuba, and American Samoa (Table 2). Through the use of the surveillance form, information about clinical types of leprosy (lepromatous, dimorphous, tuberculoid, indeterminate) is collected. Because lepromatous and dimorphous leprosy represent the contagious forms of the disease (1, 2), data for these two types of the disease are grouped together.

Information concerning age, sex, and clinical type of disease was available on 227 patients reported in 1969-1970 (Table 3). At the time of diagnosis 40.1 percent of the patients were under the age of 30, and 18.5 percent were over the age of 50. The youngest patient was a 2-year-old male, with indeterminate leprosy, not proven by biopsy. The oldest patient was over 90. One hundred thirty-four (57.5 percent) of the patients were male. One hundred fifty-five patients (68.3 percent) had a diagnosis of lepromatous (94) or dimorphous (61) leprosy, and 72 (31.7 percent) tuberculoid (40) or indeterminate (32) leprosy.

The large percentage of reported leprosy cases in persons probably infected outside the country reduces the significance of comparisons of American incidence or proportions of cases of each clinical type with those of nations with predominantly indigenous disease. Information on duration of illness at time of diagnosis was available on 156 persons whose illness was diagnosed by local physicians or consultants. The mean interval from onset to diagnosis by clinical type was lepromatous 4.8 years, dimorphous 5.3 years, tuberculoid 3.3 years, and indeterminate 2.7 years. Although the interval from onset to diagnosis is longer for lepromatous and dimorphous than tuberculoid and indeterminate, the probability of such a large difference occurring by chance is .06.

Figure 1 INCIDENCE OF LEPROSY, U.S.A. AND PUERTO RICO, 1949-1970

IV. PATIENTS BORN IN THE UNITED STATES

In 1969 and 1970, leprosy was recognized in 69 persons born in the United States (Table 2). Of these, 33 had no known history of contact with a previously recogn case, or travel or residence outside the country (Table 3). These 33 cases probe resulted from extra-familial exposure within the United States. Sixteen of the patients were born in Texas and six others lived there, so that 22 of 33 extra-familial infections probably occurred as a result of exposure in Texas. Indigen leprosy in the United States acquired from persons outside the family still appe in Texas and Louisiana; but during this 2-year period was not seen in Florida, w it had been present during the last 50 years (3-5).

Table 4 POSSIBLE PLACE OF ACQUISITION OF LEPROSY AMONG 69 CASES BORN IN THE UNITED STATES 1969-1970

Place of Birth	Possible Place of Exposure		
	Within Family	Residence Outside U.S.A.**	No known contact with and no residence outs
California	4	1	0
Hawaii	6	0	0
Louisiana	3	0	9
Texas	14	3	16
Other USA	0	3	3*
Puerto Rico ***	1	0	5
TOTAL	28	7	33

* 2 persons born in Arizona and Michigan lived in Texas. The third perso lived in Arizona.
** Residence in Mexico (5) and Asia (2).
*** Data incomplete on one case.

V. EXAMINATION OF CASE CONTACTS

In 33 of the 233 cases, diagnoses of leprosy were made in persons who could describe a contact with a case previously known to state authorities. In 20 of these, the diagnosis was made as a result of examination of family contacts, either on initial examination or up to 4 years later (Table 5). All eight of the California cases found at the time of examination of family contacts had indeterminate leprosy by clinical examination. This diagnosis is difficult to sustain without a biopsy, and there was no biopsy confirmation in any of the eight cases. In four of the six cases diagnosed in Hawaii, there were long intervals after the last known contact with a previous case in the family: 5, 11, 13, and 26 years. Eight of the 12 Texas cases were found on first examination of the family contacts. Three others, found during a fourth contact examination were from one family.

Table 5 CASES DIAGNOSED IN 1969-1970 AS A RESULT OF EXAMINATION OF FAMILY CONTACTS

State of Report	Number of Families Under Surveillance	Number of Persons Diagnosed by Contact Examination
California	9	8
Hawaii	6	0
Louisiana	2	0
Texas	15	12
Other U.S.A.	1	0
TOTAL	33	20

VI. DIAGNOSIS AND HOSPITAL CARE

The diagnosis of leprosy was confirmed by biopsy in 198 of the 233 cases; no biopsy was done or no biopsy information was recorded for 16 patients. Sixty-six of the 233 (28.3 percent) cases were hospitalized at the U. S. Public Health Service Hospital, Carville. An additional 26 were hospitalized at the U. S. Public Health Service Hospital, San Francisco, and four at the U. S. Public Health Service Hospital on Staten Island. The remaining 137 (59.2 percent) patients were either not hospitalized or were treated in medical school or general hospitals.

VII. INTERVAL FROM ONSET TO DIAGNOSIS

In one instance, the interval from last probable exposure to the time of clinical onset could be determined because the time of last probable exposure was clearly defined. An American-born Korean war veteran was in Asia for less than 2 years. Thirteen years after returning to the United States he developed tuberculoid leprosy. In several other instances, a less clearly defined time of last contact could be recorded. An Hawaiian born woman developed tuberculoid leprosy 22 years after her last recorded contact with a case. In two persons born in Texas, dimorphous leprosy developed 12 and 18 years after known contacts had begun DDS (dapsone, 4,4'-diamino-diphenylsulfone) therapy.

Table 1

CASES OF LEPROSY BY STATE AND YEAR OF DIAGNOSIS*
UNITED STATES AND PUERTO RICO, 1966-1970

STATE	1966	1967	1968	1969	1970
Alabama	1	-	-	-	-
Alaska	-	-	-	-	-
Arizona	1	2	-	1	-
Arkansas	-	-	-	-	-
California	31	22	35	35	39
Colorado	1	-	-	1	-
Connecticut	1	-	2	1	-
Delaware	-	-	-	-	-
District of Columbia	1	-	-	-	-
Florida	16	6	16	10	7
Georgia	2	-	-	-	1
Hawaii	14	13	20	9	16
Idaho	-	-	-	-	-
Illinois	-	3	-	4	5
Indiana	2	-	1	1	-
Iowa	1	-	-	-	-
Kansas	-	-	2	-	-
Kentucky	-	-	-	-	-
Louisiana	4	2	4	3	5
Maine	-	-	-	-	-
Maryland	-	1	2	-	1
Massachusetts	1	3	-	1	-
Michigan	-	-	-	-	1
Minnesota	-	-	-	-	1
Mississippi	-	-	-	-	-
Missouri	-	-	-	-	-
Montana	-	-	-	-	-
Nebraska	-	-	-	-	-
Nevada	-	-	-	-	-
New Hampshire	-	-	-	-	-
New Jersey	-	2	3	3	-
New Mexico	-	-	-	-	1
New York	6	3	6	5	8
North Carolina	-	-	-	-	-
North Dakota	-	-	-	-	-
Ohio	-	-	-	1	-
Oklahoma	1	-	-	-	-
Oregon	1	-	-	-	-
Pennsylvania	2	1	-	2	2
Rhode Island	-	1	-	-	-
South Carolina	-	-	-	1	-
South Dakota	-	-	-	-	-
Tennessee	-	-	-	-	-
Texas	13	16	29	30	28
Utah	-	1	-	-	-
Vermont	-	-	-	-	1
Virginia	-	-	1	-	1
Washington	3	-	-	-	1
West Virginia	-	-	-	-	-
Wisconsin	-	-	-	-	-
Wyoming	-	-	-	-	-
Puerto Rico	6	9	26	4	1
TOTALS	108	85	147	112	119

*Two cases, diagnosed in 1948, and reported late, are not included.

Place of Report	Place of Birth														
	Cal	Fla	Hawaii	La	NYC	PR	Tex	Other USA	Mex	Phil	Cuba	Samoa	Other Foreign	Unknown	Total
Cal	5	-	1	1	-	-	1	2	40	5	1	6	12	-	74
Fla	-	-	-	-	-	-	-	-	-	-	16	-	1	-	17
Hawaii	-	-	5	-	-	-	-	-	-	16	-	4	-	-	25
La	-	-	-	7	-	-	1	-	-	-	-	-	1	-	9
NYC	-	-	-	-	-	2	-	-	-	-	-	-	9	2	13
PR	-	-	-	-	-	5	-	-	-	-	-	-	-	-	5
Tex	-	-	-	4	-	-	31	3	20	-	-	-	1	-	59
Other USA	-	-	-	-	-	-	-	1	5	5	3	-	16	1	31
TOTAL	5	0	6	12	0	7	33	6	65	26	20	10	40	3	233

227* LEPROSY CASES BY AGE, SEX, AND CLINICAL TYPE, 1969-1970

Age in Years at Diagnosis	Lepromatous and Dimorphous			Tuberculoid and Indeterminate			Total	Cumulative Percent
	M	F	Total	M	F	Total		
0-4	0	0	0	1	0	1	1	0.4
5-9	2	0	2	3	0	3	5	2.6
10-19	15	6	21	9	1	10	31	16.3
20-29	16	16	32	13	8	21	53	40.1
30-39	17	9	26	5	4	9	35	55.5
40-49	16	12	28	2	5	7	35	70.9
50-59	7	8	15	2	7	9	24	81.5
60-69	10	6	16	2	6	8	24	92.0
70-79	9	4	13	2	1	3	16	99.1
80-89	1	0	1	0	0	0	1	99.5
90+	1	0	1	0	0	0	1	100.0

References:

1. Doull JA: The epidemiology of leprosy present status and problems. Int J Leprosy 30:48-66, 1962

2. Worth RM, Hirschy ID: A test of the infectivity of tuberculoid leprosy patients. Hawaii Med J 24:116-119, 1964

3. Badger LF: Leprosy in Florida. J Florida Med Ass 39:573-578, 1953

4. Meyer WH: History of leprosy in Louisiana. J Louisiana State Med Society 107:359-366, 1955

5. Kluth FC: Leprosy in Texas - a study of occurrence. Texas State J Med 51:119-205, 1955

MEDICAL RECORD. This form contains medical information the disclosure or release of which is restricted by 5 U.S.C. 552, (b) (6); 45 CFR Part 5.

FORM APPROVED
OMB NO. 68-R1161

CASE NUMBER

SOCIAL SECURITY NUMBER

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION
CENTER FOR DISEASE CONTROL
EPIDEMIOLOGY PROGRAM
ATLANTA, GEORGIA 30333

LEPROSY SURVEILLANCE

HEALTH JURISDICTION

☐ CASE REPORTED WEEK ENDING ___ 19 __
☐ CASE NOT REPORTED
☐ CASE TRANSFERRED FROM _____

Patient's Name — Last | First | Middle

Sex
☐ Male ☐ Female

Aliases

Race or Ethnic Group
☐ White ☐ Negro
☐ Other _____

Maiden Name (if married)

Present Address — Street or R.F.D. No. | City or Town | County | State

Occupation

Usual Address (if different from above) — Street or R.F.D. No. | City or Town | County | State

Date of Birth

Place of Birth — County | State | Country

Date Entered State _____ From Where _____

Date Entered U.S. _____ From Where _____

Citizen of

Residence in USA, or Other Countries, Starting from Present (Including Places of Military Service)

	TOWN	COUNTY	STATE	COUNTRY	Inclusive Dates From Month/Year	Inclusive Dates To Month/Year
1.						
2.						
3.						
4.						
5.						
6.						

Date of Onset | Date doctor first seen for symptoms of leprosy | Date leprosy first diagnosed

Describe Onset

If Therapy Prior to Diagnosis of Leprosy, Drugs(s) Prescribed, Dosages, Dates

Type of Leprosy
☐ Lepromatous ☐ Tuberculoid
☐ Dimorphous or Borderline ☐ Indeterminate

Referring Physician

Biopsy Performed (If yes, by whom, date and site)
☐ Yes ☐ No _____

Acid-Fast Stain of Smear or Section
Date
☐ Yes ☐ No _____

If yes, bacilli seen
☐ Yes ☐ No

Disability and/or Deformity

	Eyes	Hands	Feet	Other _____
Mild	☐	☐	☐	☐
Severe	☐	☐	☐	☐

Current Therapy
Drug(s) _____
Dosage(s) _____

Date Started

Is Patient Hospitalized (if yes, give name of hospital)
☐ Yes ☐ No

Hospital Number | Date

If Not Admitted to Hospital, Name and Address of Physician

Investigated by

HSM 4.267 (CDC) 8-69

I List all LIVING family members who have had a month or more of household contact with the patient. Include members who are not presently in the patient's household but who had such contact in the past. Start with grandparents (paternal and maternal), parents, spouse, brothers, sisters (use married names), and children. Also include other household contacts if any. Use second sheet if necessary.

Name*	Age M	Age F	Relation to Patient	Full Address No. Street City State	Inclusive Dates of Contact From Month/Year	Inclusive Dates of Contact To Month/Year
1 ☐						
2 ☐						
3 ☐						
4 ☐						
5 ☐						
6 ☐						
7 ☐						
8 ☐						
9 ☐						
10 ☐						
11 ☐						
12 ☐						
13 ☐						
14 ☐						
15 ☐						
16 ☐						
17 ☐						
18 ☐						
19 ☐						

*Check box if known or suspected case of leprosy.

II Possible Source: List all known or suspected cases of leprosy in persons (other than those above) who have had any contact with the patient. Note if deceased.

STATE EPIDEMIOLOGISTS AND STATE LABORATORY DIRECTORS

The State Epidemiologists are the key to all disease surveillance activities. They are responsible for collecting, interpreting, and transmitting data and epidemiological information from their individual States; their contributions to this report are gratefully acknowledged. In addition, valuable contributions are made by State Laboratory Directors; we are indebted to them for their valuable support.

STATE	*STATE EPIDEMIOLOGIST*	*STATE LABORATORY DIRECTOR*
Alabama	Frederick S. Wolf, M.D.	Thomas S. Hosty, Ph.D.
Alaska	Donald K. Freedman, M.D.	Frank P. Pauls, Dr.P.H.
Arizona	Philip M. Hotchkiss, D.V.M.	H. Gilbert Crecelius, Ph.D.
Arkansas	John A. Harrel, Jr., M.D.	Robert T. Howell, Dr. P.H.
California	James Chin, M.D.	Howard L. Bodily, Ph.D.
Colorado	C.S. Mollohan, M.D.	C.D. McGuire, Ph.D.
Connecticut	James C. Hart, M.D.	William W. Ullmann, Ph.D.
Delaware	Floyd I. Hudson, M.D.	Irene V. Mazeika, M.D.
District of Columbia	William E. Long, M.D.	Alton Shields, Dr.P.H.
Florida	Ralph B. Hogan, M.D.	Nathan J. Schneider, Ph.D.
Georgia	John E. McCroan, Ph.D.	Earl E. Long, M.S.
Hawaii	Harry L. Boyett, M.D.	Henri Minette, Dr.P.H.
Idaho	John A. Mather, M.D.	Darrell W. Brock, Dr.P.H.
Illinois	Richard H. Suhs, M.D.	Richard Morrissey, M.P.H.
Indiana	Charles L. Barrett, M.D.	Josephine Van Fleet, M.D.
Iowa	Arnold M. Reeve, M.D.	W.J. Hausler, Jr. Ph.D.
Kansas	Don E. Wilcox, M.D.	Nicholas D. Duffett, Ph.D.
Kentucky	Calixto Hernandez, M.D.	B.F. Brown, M.D.
Louisiana	Charles T. Caraway, D.V.M.	George H. Hauser, M.D.
Maine	O. Thomas Feagin, M.D. (Acting)	Charles Okey, Ph.D.
Maryland	John D. Stafford, M.D. (Acting)	Robert L. Cavenaugh, M.D.
Massachusetts	Nicholas J. Fiumara, M.D.	Geoffrey Edsall, M.D.
Michigan	Norman S. Hayner, M.D.	Kenneth R. Wilcox, Jr., M.D.
Minnesota	D.S. Fleming, M.D.	Henry Bauer, Ph.D.
Mississippi	Durward L. Blakey, M.D.	R.H. Andrews, M.S.
Missouri	H. Denny Donnell, Jr., M.D.	Elmer Spurrier, Dr.P.H.
Montana	Mary E. Soules, M.D.	David B. Lackman, Ph.D.
Nebraska	Henry D. Smith, M.D.	Henry McConnell, Dr.P.H.
Nevada	William M. Edwards, M.D.	Paul Fugazzotto, Ph.D.
New Hampshire	Vladas Kaupas, M.D.	Robert A. Miliner, Dr.P.H.
New Jersey	Ronald Altman, M.D.	Martin Goldfield, M.D.
New Mexico	Nancy C. McCaig, M.D.	Daniel E. Johnson, Ph.D.
New York City	Howard B. Shookoff, M.D.	Morris Schaeffer, M.D.
New York State	Alan R. Hinman, M.D.	Donald J. Dean, D.V.M.
North Carolina	Martin P. Hines, D.V.M.	Lynn G. Maddry, Ph.D.
North Dakota	Kenneth Mosser	C. Patton Steele, B.S.
Ohio	John H. Ackerman, M.D.	Charles C. Croft, Sc.D.
Oklahoma	Stanley Ferguson, Ph.D.	William R. Schmieding, M.D.
Oregon	Samuel Osgood, M.D.	Gatlin R. Brandon, M.P.H.
Pennsylvania	W.D. Schrack, Jr., M.D.	James E. Prier, Ph.D.
Puerto Rico	Luis Mainardi, M.D.	Eduardo Angel, M.D.
Rhode Island	David L. Starbuck, M.D. (Acting)	Malcolm C. Hinchliffe, M.S.
South Carolina	Donald H. Robinson, M.D.	Arthur F. DiSalvo, M.D.
South Dakota	Robert H. Hayes, M.D.	B.E. Diamond, M.S.
Tennessee	Robert H. Hutcheson, Jr., M.D.	J. Howard Barrick, Dr.P.H.
Texas	M.S. Dickerson, M.D.	J.V. Irons, Sc.D.
Utah	Taira Fukushima, M.D.	Russell S. Fraser, M.S.
Vermont	Robert B. Aiken, M.D.	Dymitry Pomar, D.V.M.
Virginia	H.E. Gillespie, M.D.	W. French Skinner, M.P.H.
Washington	Byron J. Francis, M.D.	W.R. Giedt, M.D.
West Virginia	N.H. Dyer, M.D.	J. Roy Monroe, Ph.D.
Wisconsin	H. Grant Skinner, M.D.	S.L. Inhorn, M.D.
Wyoming	Herman S. Parish, M.D.	Donald T. Lee, Dr.P.H.