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2002 Summary of Disease Outbreaks

Murine Typhus Testing

Communicable Disease Report

*Hawai'i Department of Health
Communicable Disease Division*

http://www.state.hi.us/doh/resource/comm_dis/cdr.html

September/October 2003

Summary of Communicable Disease Investigations and Outbreaks, Hawai'i – 2002

Hawai'i currently requires that health providers, health facilities, and laboratories report 58 diseases or conditions, including events of bioterrorism and clusters of illness, to the Department of Health (DOH), Disease Investigation Branch. Fifty-four are designated by the Council of State and Territorial Epidemiologists as nationally notifiable diseases. Confirmed and probable cases are reported to the Centers for Disease Control and Prevention on a weekly basis via the National Electronic Telecommunications Surveillance System. Tuberculosis, sexually-transmitted diseases, AIDS/HIV, Hansen's disease, and lead surveillance data are reportable to individual programs.

In calendar year 2002, Hawai'i's ten most frequently reported infectious diseases (in descending order) were: chlamydia, campylobacter, gonorrhea, influenza and influenza-like illness (ILI), salmonellosis, tuberculosis, AIDS, pneumococcal disease, streptococcal infections, giardiasis, and vancomycin resistant enterococcal infection. Refer to Table 5 (page 6) for the disease incidence for Hawai'i's notifiable diseases between 1998-2002.

The Disease Investigation Branch conducted 657 investigations affecting 745 reportedly ill individuals.

Fish Poisoning Incidents

Ciguatera poisoning accounted for 19 incidents involving 56 case-patients. Recreationally caught fish accounted for 12 (63%) of these incidents; four (21%) were associated with fish purchased at a market; three (16%) occurred from fish obtained from a friend/relative. Refer to Table 1 for a list of implicated fish and the reported catch sites in these incidents.

Scombroid poisoning accounted for 13 outbreaks and 18 single cases. All 13 outbreaks were related to restaurants. Of the 18 single scombroid incidents, seven (39%) were related to restaurants, six (33%) to home prepared fish, three (17%) to fish prepared in a cafeteria, one (5%) to fish purchased from a grocery store, and one (5%) to fish purchased from a lunch wagon. Four of the reported single cases purchased fish from unlicensed street vendors. Refer

to Table 2 for a list of implicated fish types and locations of preparation. No incidents of **hallucinogenic fish poisoning** were reported for 2002.

Table 1. List of Implicated in Ciguatera Fish Poisoning Incidents by Islands and Catch Site, Hawaii - 2002

Island/City of Incident	City/location of catch site of fish	Fish
Oahu		
Honolulu	Mokoleia	Ulua
Honolulu	Unknown	Seabass
Haleiwa	Moku Manu Island	Snapper (wahanui)
Kailua	Westside of Kaua'i	Perch
Hawaii		
Paauilo	Honokohau Boat Harbor	Ulua
Waikaloa	Kaawaloa near Kealahou Bay	Ulua
Kaua'i		
Kilauea	Fiji	Grouper (probably)
Kapaa	Queen's bath area below Princeville	Kole
Milolii	Milolii	Papio
Kapaa	Anini	Kole
Lihue	Eleele	Barracuda
Hanamaulu	Unknown	Uku
Kapaa	Unknown	Uku
Kilauea	Kapaa-Kilauea coast	Uku
Kilauea	Haena	Oplegnathidae ("knife jaw")
Eleele	McBride	Baracuda
Maui		
Waituku	Unknown	Unknown fish
Puunene	Unknown	Seabass
Waituku	Makena	Wahanui

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Food-borne Outbreaks

The Disease Investigation Branch received 325 food-borne illness complaints in 2002. Of those, 14 outbreaks were detected and subsequently investigated. The etiology was confirmed in three (21%) of the outbreaks and was probable in seven (50%). The agent was unknown in four (29%) of the outbreaks. Refer to Table 3 for a detailed listing of all food-borne outbreaks.

Table 2: List of Implicated Fish Types in Scombroid Fish Poisoning Incidents (Outbreaks and Single Cases) by Island and Location of Preparation, Hawaii - 2002

Island/City	Preparation of Fish	Fish
Hawaii		
Kona	Restaurant	Mahi Mahi
Kailua-Kona	Restaurant	Ahi
Kaua'i		
Hanalei	Restaurant	Mahi Mahi
Kapaa	Restaurant	Ahi
Lihue	Home	Ahi
Koloa	Cafeteria	Ono
Kapaa	Cafeteria	Ahi
Koloa	Cafeteria	Mahi Mahi
Kilauea	Restaurant	Ahi
Lihue	Restaurant	Ahi
Kapaa	Home	Akule
Koloa	Home	Akule
Kapaa	Home	Akule
Lihue	Home	Akule
Kalaheo	Home	Ahi
Kapaa	Home	Ahi
Maui		
Wailuku	Restaurant	Mahi Mahi
O'ahu		
Honolulu	Restaurant	Mahi Mahi
Kailua	Restaurant	Mahi Mahi
Honolulu	Restaurant	Mahi Mahi
Waipahu	Restaurant	Mahi Mahi
Mililani	Lunch Wagon	Ahi
Pearl City	Restaurant	Ahi
Honolulu	Restaurant	Ahi
Honolulu	Restaurant	Ahi
Honolulu	Restaurant	Mahi Mahi
Honolulu	Restaurant	Ahi
Honolulu	Restaurant	Hamachi
Honolulu	Restaurant	Mahi Mahi
Honolulu	Restaurant	Ahi (imported)
Honolulu	Superette	Mahi Mahi (imported)

The following outbreak summaries demonstrate the importance of timely reporting, the benefits of molecular subtyping methods such as pulse field gel electrophoresis (PFGE), and the hazards of unlicensed food vendors.

1. Staphylococcal Intoxication Associated with a Restaurant, O'ahu

Complaints of illness after eating at a Waianae restaurant prompted an epidemiological investigation. Thirty-five individuals were identified who became ill after dining between March 17 and May 13, 2002. Symptoms included vomiting, diarrhea, abdominal cramps, and nausea occurring approximately 4.25 hours after consumption. Epidemiological investigation implicated hamburger steak and fried noodles as food items statistically associated with illness. Food samples and environmental swabs were positive for toxin producing *Staphylococcus aureus*. The only clinical specimen collected matched the PGFE clonal pattern of the food and environmental samples. Further inspection of the restaurant revealed temperature abuse as a contributory factor.

2. Probable Food-borne Outbreak of Gastroenteritis at a Birthday Celebration, Honolulu

On July 17, 2002, DOH was notified of gastrointestinal illness among attendees at a birthday party held at a Honolulu hotel on July 13. A guest list from the party and a list of foods served were obtained. Thirty-seven attendees reported symptoms including diarrhea, stomachache, nausea, vomiting, headache, and muscle aches, which occurred 14.75-99 hours after eating. The wide range indicated possible secondary transmission of illness. Consumption of birthday cake and ranch salad dressing were the only items that had statistically significant association with illness. Other catered events at the hotel reported no illness among attendees. Hotel staff reported no illness prior to or following the event. Forty purchasers of the cake prepared at the same retail outlet reported no illness.

The only leftover food item available for testing was the cake. Culture results were negative for the most common bacterial food-borne pathogens. Unfortunately, no clinical samples were collected.

3. Probable Staphylococcal Intoxication Associated with a Fund raising Event, O'ahu

On April 22, 2002 the president of a dog fancier club notified DOH about gastrointestinal illness among members of their club, possibly caused by shredded pork purchased from their fund raising event. 165 orders of beef ribs and 165 orders of shredded pork were ordered for pick up on April 20, 2002. The meals were distributed to friends, family, and members of the public for the purpose of fund raising. Only 15 people were identified as having eaten the shredded pork. 11 of those subsequently became ill with vomiting, abdominal cramps, diarrhea, and nausea occurring approximately 3.5 hours after eating. Three cases were seen at emergency rooms. Unfortunately, no clinical samples were obtained for analysis. Food samples were collected and all tested positive for *Staphylococcus aureus* toxin. The shredded pork vendor was found to have prepared and sold ready-to-eat foods without proper permits and lacked both a food establishment and an approved kitchen facility.

Vaccine Preventable Diseases

The Disease Investigation Branch investigates suspected cases of vaccine preventable diseases in Hawai'i. A total of 52 investigations were initiated involving reportable vaccine preventable diseases. This represents a 67% decrease compared to 2001 investigations. A summary of investigations for each disease appears in Table 4.

Influenza

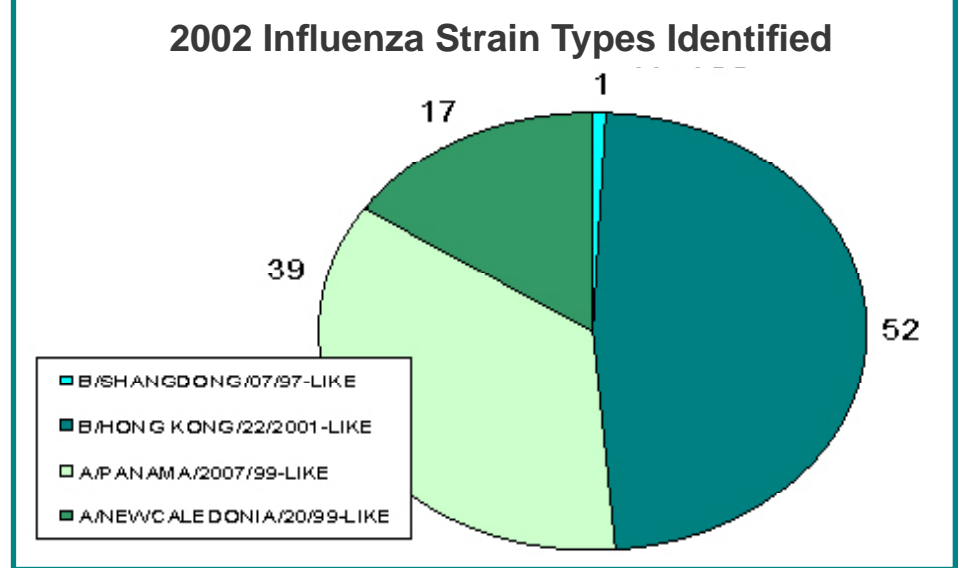
Schools are required to contact DOH when the rate of absenteeism exceeds 10% for the entire school and 20% for a

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single class. Schools experiencing high absentee rates of students demonstrating ILI symptoms (fever coupled with one or more respiratory symptoms) are requested to collect nasopharyngeal, pharynx, or nasal wash specimens for submission to the State Laboratories Division for culture isolation and possible strain-typing. This information assists DOH in determining the causative agent of the outbreak for control and prevention purposes. During 2002, two school outbreaks occurred in which the strain identified had circulated in Southern Asia only; these isolates coupled with others from the season confirmed that the strain was circulating widely in Hawai'i. Subsequently, the influenza B/Hong Kong strain was included in 2002-03 vaccine and will continue to be included in the 2003-04 influenza vaccine. Refer to Figure 1 for a classification of strain types identified during the year.

Figure 1. 2002 Influenza Strain Types



1. Outbreak of Influenza B in an Elementary School, O'ahu

On April 30, 2002, the Disease Investigation Branch received a call from a Leeward O'ahu public health nurse. Several students around the age of 11 demonstrated influenza-like symptoms. Three collection kits were sent for specimen collection.

The public health nurse collected two samples from the thirteen students who became ill and were sent home that day. On May 8, 2002 the State Laboratories Division confirmed two samples to be influenza B. Confirmed strain-typing was not performed for the two positive influenza B isolations however, B/Victoria lineage was suspected.

Table 3. Summary of Food-borne Outbreaks, Hawaii-2002

Island	# ill/ #exposed	Symptoms	Incubation (hrs)	Foods implicated	Agent	Status	Contributory causes	Place of Prep/Place eaten
O'ahu	4/4	V, D, ADC, H, C	40 hrs	Chicken	Norovirus	Probable	Unknown	Restaurant/Restaurant
O'ahu	35/59	V, D, ADC, N	4.25 hrs	Char sui, hamburger steak	<i>Staphylococcus enterotoxin</i>	Confirmed	Inadequate cooling, inadequate cold hold	Restaurant/Home
O'ahu	5/5	V, D, ADC, H	2 hrs	Fried rice	<i>Staph/Bacillus</i>	Probable	Inadequate cold hold	Restaurant/Restaurant
O'ahu	11/15	V, D, N, H	3.5 hrs	Shredded pork	<i>Staph/Bacillus</i>	Probable	Inadequate refrigeration, not licensed	Fundraiser-home
O'ahu	2/2	V, D, N, ADC	1.5 hrs	Fried rice	<i>Bacillus cereus</i>	Confirmed	Unknown	Restaurant/Restaurant
O'ahu	27/87	D, ADC, V, F, H, M	41 hrs	Unknown	Unknown	Probable	Unknown	Restaurant/Restaurant
Kaua'i	2/2	V, D, ADC	7.5 hrs	Unknown	Unknown	Probable	Unknown	Restaurant/Restaurant
Kaua'i	3/3	V, D, ADC	3 hrs	Chicken/Beef Taco	Unknown	Probable	Unknown	Restaurant/Restaurant
Kaua'i	2/3	D, ADC	10 hrs	Seafood sandwich	Unknown	Probable	Unknown	Restaurant/Workplace
Kaua'i	2/2	D, V, ADC, BA	6.5 hrs	Unknown	Unknown	Probable	Unknown	Private home/Private home
Hawai'i	42/88	D, V, ADC	4 hrs	Corn beef hash	<i>Staphylococcus aureus</i>	Confirmed	Inadequate cooling	Restaurant/Workplace
Maui	19/30	N, V, ADC, D, H, M	33 hrs	Chocolate mac tort	<i>Norovirus</i>	Probable	Unknown	Restaurant/Restaurant
Maui	37/37	V, D, F, ADC, H, M	30 hrs	Chocolate mac tort	<i>Norovirus</i>	Probable	Unknown	Restaurant/Restaurant
Maui	11/14	V, D, ADC, C, H, M	13.75 hrs	Unknown	<i>Norovirus</i>	Probable	Unknown	Restaurant/Restaurant

D=diarrhea, V=vomiting, ADC=abdominal cramps, H=headaches, C=chills, N=nausea, F=fever, BA=body aches,

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2. Outbreak of Influenza B in a Private School, O'ahu

On May 13, 2002, the Disease Investigation Branch received a call from a school health nurse. Several students from Grade 8 demonstrated influenza-like symptoms including fever, cough, sore throat, chills, and vomiting. Five collection kits were sent to the school for specimen collection.

The school health nurse collected five samples from the thirteen students who became ill and were sent home that day. On May 23, 2002 the State Laboratories Division confirmed all five samples to be influenza B. Following the weekend, the number of ill children sharply declined.

Zoonoses

Murine Typhus

There was more murine typhus fever activity in Hawai'i in 2002 than has been seen in the previous nine years combined. The 47 cases reported in 2002 represent the largest number of murine typhus cases reported in a single year in the Hawaiian Islands for over 50 years. Cases were seen on a total of five islands: Maui (35), Moloka'i (6), O'ahu (3), Kaua'i (2), and Hawai'i (1). There were no fatalities but

moderate to severe illness was seen.

There was a noticeable increase in the mice population on Maui. While a decrease in murine typhus cases was seen after the Vector Control Branch did extensive work to bring the rodent population down, it is not known definitively whether mice are reservoirs for murine typhus. The increase in cases may also be attributed, at least in part, to the vigilant surveillance on the part of the health care community as well as the public response to media coverage.

Dengue Fever

The dengue fever outbreak of 2001 continued on into 2002. 14 cases were identified; 7 (50%) from Maui, 6 (43%) from O'ahu, and 1 (7%) from Kaua'i. The last autochthonous case had an onset of illness in February.

Hepatitis Summary

The Disease Investigation Branch investigates reports of acute and chronic hepatitis of viral origin. Prophylaxis of immune globulin and vaccine are offered to contacts of acute cases of hepatitis A. Contacts of acute cases and chronic carriers of hepatitis B are evaluated for their immune status and susceptible individuals are offered the hepatitis B vaccination series. The Disease Investigation Branch and the Immunizations Branch now include the duties of the former Hepatitis Control Section.

Hepatitis A

Twenty-five cases of hepatitis A were reported to the DOH in 2002. Twenty cases were reported from O'ahu, two from Hawai'i, two from Maui and one from Kaua'i. A cluster of Hepatitis A was reported in nine men who have sex with men occurred in early February. After epidemiological investigation, the illness appeared to be associated with a New Year's celebration that took place in Waikiki.

Hepatitis B

Twelve cases of acute hepatitis B were reported to DOH. Eleven cases were reported on O'ahu, and one on Maui.

The Hepatitis B Perinatal Program identified 175 infants born to carrier mothers in the year 2002. One hundred and seventy-four received HBIG (99.4%) and 110 (62.8%) completed the three dose vaccine series. Eighty-two percent of the infants that had post-vaccine serology at 1 year of age showed immunity to Hepatitis B.

The hepatitis B high-risk program registered 3963 individuals. Overall, this was about a 16% decrease from 2001. Sixty-one percent of those tested for serological markers to hepatitis B showed evidence of exposure to the virus or vaccine immunity, 31% were susceptible, and 8% were chronic carriers. Of the 947 individuals who were susceptible to virus infection, 844 (89%) received at least one dose of the vaccine series.

Hepatitis C

Hepatitis C has been a reportable disease since October 1997. About a 1000 new cases of chronic disease are reported each year. The exact number is problematic due to retesting and duplicate reporting by physicians and laboratories.

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Table 4. Vaccine Preventable Disease Investigations by Island and Final Diagnosis

	Hawai'i	Kaua'i	Maui	O'ahu	Total	Additional Information
Diphtheria	0	0	0	0	0	
Measles	0	0	0	1 confirmed, 3 probable	4	
Mumps	0	0	3	12	15	
Pertussis	1-confirmed	5-probable, 7-suspect	3-suspect	6-confirmed, 7-probable, 1-suspect	30	
Rubella	0	0	0	1-probable	1	2-ruled out
Congenital Rubella	0	0	0	1	1	imported
Tetanus	1	0	0	0	1	
Total	2	12	6	32	52	

Table 5. 5-Year Summary of Notifiable Diseases, Hawaii 1998-2002

DISEASE/YEAR	1998	1999	2000	2001	2002	5-YR MEAN	5-YR MEDIAN
Total Resident Population, July 1st est., 1998-2002 ¹	1,215,233	1,210,300	1,212,281	1,224,398	1,244,898		
	NO. OF CASES	NO. OF CASES	NO. OF CASES	NO. OF CASES	NO. OF CASES		
AIDS	163	103	108	133	134	128	133
AMEBIASIS *	14	23	33	26	29	25	26
ANTHRAX	0	0	0	0	0	0	0
BOTULISM, FOODBORNE	0	0	0	0	0	0	0
BOTULISM, INFANT	0	0	2	2	1	1	1
BOTULISM, WOUND	N/R	N/R	N/R	0	0	0	0
BRUCELLOSIS	0	2	1	3	1	1	1
CAMPYLOBACTERIOSIS *	622	884	834	755	890	797	834
CHANCROID	N/R	N/R	N/R	0	0	0	0
CHEMICAL *	0	0	0	0	0	0	0
CHLAMYDIA	2603	3167	3541	4037	4521	3574	3541
CHOLERA	1	1	0	0	0	0	0
COCCIDIOIDOMYCOSIS	N/R	N/R	N/R	N/R	N/R	N/R	N/R
CONJUNCTIVITIS, INFECTIOUS *	N/R	N/R	N/R	N/R	N/R	N/R	N/R
CRYPTOSPORIDIOSIS	3	0	0	3	2	2	2
DENGUE FEVER	6	1	0	153	14	35	6
DIPHTHERIA	0	0	0	0	0	0	0
<i>E. COLI</i> 0157:H7	19	15	14	22	37	21	19
ENTEROCOCCUS, VANCOMYCIN RESISTANT*	103	102	93	93	91	96	93
FILARIASIS	1	1	1	0	0	1	1
FISH POISONING, CIGUATERA *	69	43	37	59	70	56	59
FISH POISONING, SCOMBROID *	36	41	53	66	50	49	50
GASTROENTERITIS, FOODBORNE *			9(OUTBKS)		N/A	N/A	N/A
GIARDIASIS *	123	117	105	118	91	111	117
GONORRHEA	506	463	446	605	740	552	506
HAEMOPHILUS INFLUENZA (invasive disease)	10	15	25	23	40	23	23
HALLUCINOGENIC FISH POISONING *	6	0	2	1	0	2	1
HANSEN'S DISEASE	19	22	15	24	11	18	19
HANTAVIRUS	0	0	0	0	0	0	0
HEMOLYTIC UREMIC SYNDROME	N/R	0	0	0	0	N/A	N/A
HEPATITIS A	54	24	19	17	25	28	24
HEPATITIS B (ACUTE)	18	16	13	22	12	16	16
HEPATITIS C (ACUTE)	54	0	2	0	1	11	1
HEPATITIS E	N/R	N/R	N/R	0	0	N/A	N/A
HEPATITIS non-A, non-B	0	0	0	N/R	N/R	N/A	N/A
INFLUENZA *(& Infl-Like Illness)	1323	985	503	980	708	900	980
KAWASAKI DISEASE	N/R	N/R	N/R	N/R	N/R	N/R	N/R
LEGIONNELOSIS	1	1	1	5	1	2	1
LEPTOSPIROSIS *	47	52	23	16	16	31	23
LISTERIOSIS	6	7	4	6	8	6	6
LYME DISEASE	NR	NR	N/R	N/R	N/R	N/R	N/R
MALARIA	9	12	10	13	9	11	10
MEASLES	1	2	6	8	4	4	4
MENINGITIS, ASEPTIC & VIRAL *	N/R	N/R	N/R	N/R	N/R	N/R	N/R
MENINGITIS, <i>H. Influenza</i>	0	0	0	N/R	N/R	N/A	N/A
MENINGITIS, MENINGOCOCCAL	5	10	8	13	9	9	9
MENINGITIS, OTHER *	NR	NR	N/R	N/R	N/R	N/R	N/R
MUMPS	26	16	23	42	22	26	23
PELVIC INFLAMMATORY DISEASE [PID]	N/R	N/R	N/R	16	N/A	N/A	N/A
PERTUSSIS	26	51	41	42	30	38	41
PLAGUE	0	0	0	0	0	0	0
PNEUMOCOCCAL DISEASE *	81	61	160	120	128	110	120
POLIOMYELITIS	0	0	0	0	0	0	0
PSITTACOSIS	0	0	0	0	0	0	0
QFEVER	N/R	N/R	N/R	0	0	N/A	N/A
RABIES	0	0	0	0	0	0	0
RUBELLA (GERMAN MEASLES)	2	0	0	2	0	1	0
RUBELLA, CONGENITAL	0	0	0	1	1	0	0
SALMONELLOSIS	295	338	237	356	268	299	295
SHIGELLOSIS	51	35	38	59	72	51	51
SMALLPOX	N/R	N/R	N/R	0	0	N/A	N/A
STREPTOCOCCAL INFECTIONS **	35	28	37	89	110	60	37
SYPHILIS, PRIMARY & SECONDARY	4	3	2	12	11	6	4
SYPHILIS, EARLY LATENT	0	3	3	7	21	7	3
SYPHILIS, LATENT & LATE LATENT	11	6	6	23	25	14	11
TETANUS	0	0	0	0	1	0	0
TOXIC SHOCK SYNDROME(STREP)	0	0	0	0	0	0	0
TOXOPLASMOSES *	1	2	2	22	17	9	2
TRICHINOSIS	0	0	1	0	0	0	0
TUBERCULOSIS	181	184	136	151	148	160	151
TULAREMIA	N/R	N/R	N/R	0	0	N/A	N/A
TYPHOID FEVER	4	0	6	3	5	4	4
TYPHUS, MURINE *	10	2	5	4	47	14	5
VARICELLA ZOSTER (CHICKENPOX) *	N/R	N/R	N/R	N/R	N/R	N/R	N/R

¹ Population Estimates Program, Population Division, U.S. Bureau of the Census, Washington, DC 20233

N/R stands for "not reportable" and N/A stands for "not applicable."

Murine Typhus Testing in Hawai`i

Background

Murine typhus, a zoonotic disease caused by *Rickettsia typhi* (also *R. felis*), has been endemic in Hawai`i since the early 1900's. Although human cases have been reported on all the major islands (Maui, O`ahu, Kaua`i, Hawai`i, Moloka`i), the vast majority of cases have occurred on Maui. Between 1982 and 2001, the largest number of annual cases statewide and on Maui was 13 and 12, respectively. In 2002, a dramatic increase in human cases was observed; 47 cases were reported statewide, of which 35 occurred on Maui alone. Human cases continue to be reported this year, although with less frequency than in 2002. As of August 31, 2003, 15 cases of murine typhus have been identified statewide, as compared to 24 cases during the same time last year.

Clinical Disease

Common symptoms of murine typhus include high fever, chills, headache, myalgia, arthralgia, nausea, and vomiting. Other symptoms, such as diarrhea, abdominal pain, backache, and stiff neck may also occur. Skin rash can appear in up to 45 to 60% of all cases, most commonly presenting as a macular, papular, or maculopapular exanthem. Infected patients may end up experiencing severe complications, such as renal failure and meningo-encephalitis, although these manifestations occur infrequently. Laboratory findings can include thrombocytopenia, anemia, and elevated liver and renal function tests. Murine typhus can be effectively treated with seven to 10 days of doxycycline.

Diagnosis

The diagnosis of murine typhus is made both by clinical and laboratory findings. The Indirect Immunofluorescent Antibody assay (IFA) is commonly utilized to detect

IgM or IgG antibodies to the typhus group of *Rickettsiae*, including those that cause murine typhus (*R. typhi*). The presence of IgM and/or IgG antibodies in acute serum samples provides evidence of recent murine typhus infection. Many patients with murine typhus often do not demonstrate serum antibodies during the first week after disease onset, therefore requiring follow-up testing during or after the second week post onset. A four-fold rise in antibody titers between two consecutive serum samples is considered confirmatory.

Availability of Local Testing

Until this year, human IFA testing of serum from suspect cases of murine typhus in Hawai`i has been conducted by mainland commercial laboratories, due to the unavailability of testing in Hawai`i. However, in response to the increase in number of cases of murine typhus in 2002, the Department of Health (DOH) Laboratory, in conjunction with the Disease Outbreak Control Division of the DOH, has recently initiated and implemented human IFA testing for murine typhus. Reagents for the IFA test are obtained from the Centers for Disease Control and Prevention in Atlanta, thereby allowing the State Laboratory to conduct reference testing for murine typhus. The availability of serological testing for murine typhus in Hawai`i should improve the accuracy and timeliness of both clinical diagnosis/treatment and public health response to this endemic infectious disease.

Physicians and other medical providers who suspect murine typhus infection in their patients are encouraged to collect serum samples for IFA testing and submit them to the DOH laboratory. Commercial

laboratories that provide phlebotomy services should be instructed to send the serum to the DOH Laboratory, attention Rebecca Sciulli.

For any questions on murine typhus, including laboratory testing, please call the Disease Outbreak Control Division in Honolulu at (808) 587-6596.

Submitted by Paul K. Kitsutani, M.D., M.P.H., Medical Officer, Centers for Disease Control and Prevention, assigned to the Hawai`i Department of Health.

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Information & Disease Reporting	586-4586
After-hours Emergency Reporting	247-2191
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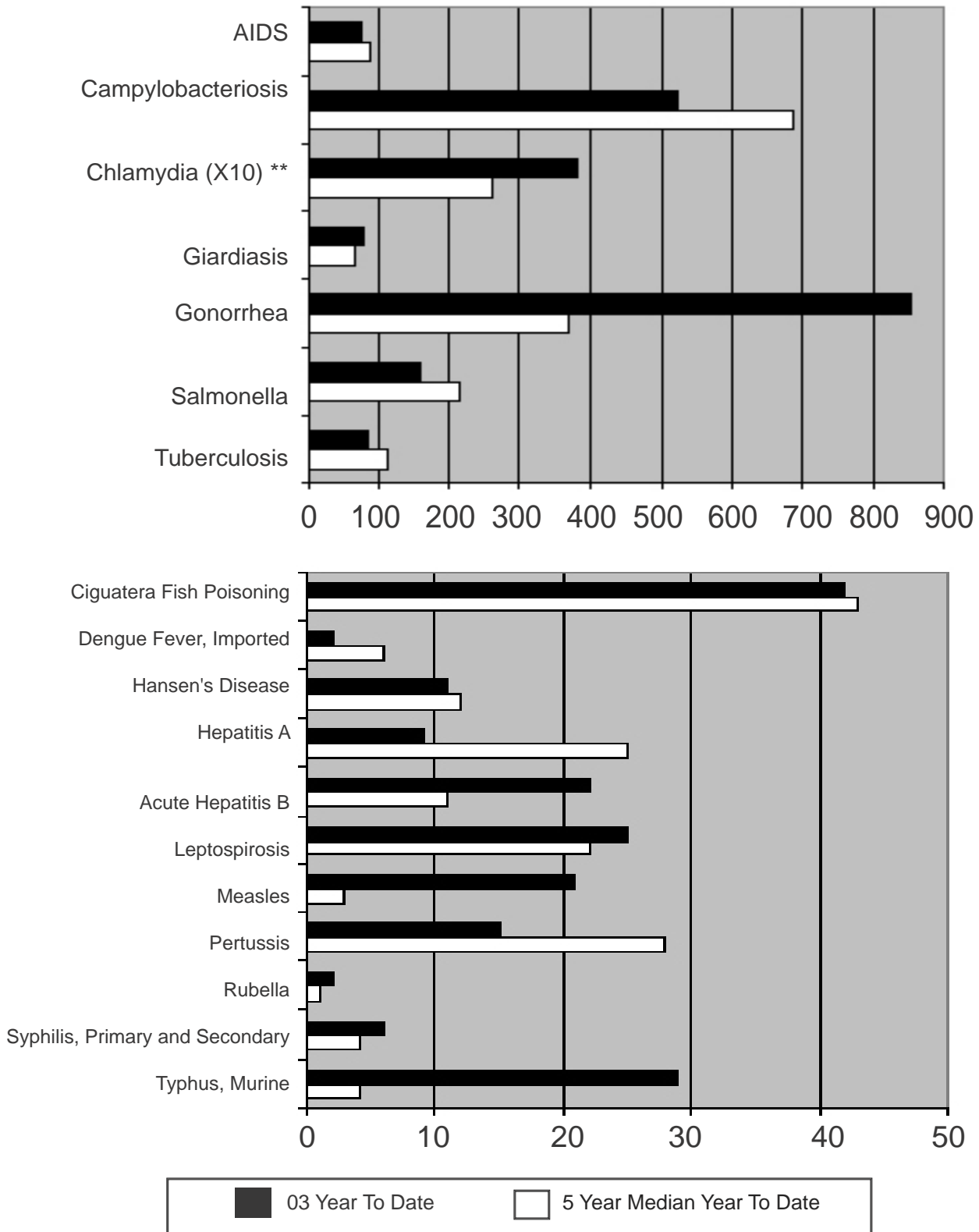
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Communicable Disease Surveillance

Selected Diseases by Year of Report*
Hawaii, 2003 Year-to-date through October



* These data do not agree with tables using data of onset or date of diagnosis.

** The number of cases graphed represent 10% of the total number reported