



**REPORTED  
COMMUNICABLE DISEASES IN  
ACTIVE NAVY AND MARINE CORPS  
PERSONNEL:**

**10 YEAR REPORT, 1988-1997**



REPORTED COMMUNICABLE DISEASES IN ACTIVE NAVY AND MARINE CORPS PERSONNEL

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## FROM THE COMMANDING OFFICER

Our goal in publishing this “10 Year Report” is to supply you with valuable information on the health of U.S. Naval forces. We believe this information can assist you in developing local policy, allocating resources, and promoting health among the communities you serve. Collection, analysis, and communication of information enhances our ability to employ our motto “Think Populations, See Individuals.” When we promote health and prevent disease among our communities, we help to ensure the highest quality of life for each of us. As the Navy’s “Population-Based Medicine Command,” we at the Navy Environmental Health Center are committed to working with you to achieve this goal. We value our partnership with you and desire to enhance our relationship in the future in order to ensure we are producing the best products and providing the best services possible.

Captain R. L. Buck  
Medical Corps, United States Navy  
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## INTRODUCTION

Navy and Marine Corps medical activities have been reporting selected communicable diseases for many years. This information is useful in the control and prevention of disease. The information flow is from the medical activity or line command which makes the diagnosis to the area Navy Environmental and Preventive Medicine Unit (NEPMU). After review, the NEPMUs forward these reports to the Navy Environmental Health Center (NAENVIRHLTHCEN) where they are entered into a database and are analyzed. This report summarizes the last 10 years of data on reportable diseases in the U. S. Navy and Marine Corps.

### History

The original format for reporting diseases in Naval forces was the Disease Alert Report (DAR). These reports were commonly sent to the NEPMUs by mail or Naval message. Copies were kept on file at the NEPMUs and NAENVIRHLTHCEN. Beginning in 1987 DARs were entered into a simple database program at the NEPMUs. This allowed for analysis and reporting. In 1994 electronic reporting was made possible using Epi Info, a simple statistical package, which was developed by the Centers for Disease Control and Prevention (CDC). Most sites continued to report by mail or message. However, the NEPMUs were required to put all reports into the Epi Info program before forwarding to NAENVIRHLTHCEN.

The Naval Disease Reporting System (NDRS), an automated computer software program, became an official part of the reportable disease system in 1998 with the release of the *Medical Event Reports* - BUMED Instruction 6220.12A, replacing the *Disease Alert Report* instruction. This new instruction directs that all units of the Navy, Marine Corps, and Military Sealift Command (MSC) providing inpatient or outpatient care, submit Medical Event Reports (MERs) using the NDRS. A MER is required for selected communicable diseases, injuries, outbreaks, and other diseases of special concern which may affect operational readiness or present a danger to the community.

The stated goals of this reporting system are to "provide timely and adequate public health response to medical events; to allow statistical estimation of the distribution, trends, and risks associated with reportable medical events; and to assist in the development and assessment of policy and resource allocation for the control of medical events".

The NDRS was adapted from the Air Force reportable disease surveillance program. It was tested in 1997 and deployed to the Fleet in 1998. The current version is the second; and the third version will be released in 1999. This program is the backbone of the reportable disease system. Each new version will be revised to reflect customer feedback and increase compliance with the Defense Medical Surveillance System.

In 1998, 98% of the reports to NEPMU2 in Norfolk, Virginia, were submitted via the NDRS. Users have expressed pleasure with the ease of use for data entry. The reporting functions of NDRS are currently under evaluation for compatibility for total integration with the Shipboard Automated Medical System (SAMS) program.

A Department of Defense (DoD) Reportable Disease Working Group was formed in 1997. This group developed a Tri-Service Reportable Events list. This list includes more environmental and occupational diseases than previously reported. The emphasis is no longer only on communicable diseases. The Navy and Marine Corps uses this list with the addition of a number of other diagnoses considered important to our Services.

### **Limitation of Data**

Reportable disease surveillance systems use passive surveillance. This means that the activities receiving reports are dependent upon those who initially generate the reports. However, there is an unspoken obligation on the part of the receiver to produce policy, training, and tools to support the efforts of the reporting activities. It is also essential that the activities receiving the reports analyze the data and report the results back to the primary customer - the reporting activities.

Since the reportable disease system is a passive surveillance system, under reporting and inaccurate reporting is a major concern. Not all activities diligently comply with reporting requirements. Furthermore, NAVENVIRHLTHCEN has made a number of changes over the years in reportable disease policy that have affected the consistency of the program.

The data in this document represent only reports that were submitted to the NEPMUs and transferred to NAVENVIRHLTHCEN. An activity may have diagnosed more cases of a disease than is reflected in this data, but if a disease report was not generated and successfully transmitted, it is not included in this data. In some cases, 100% of disease incidence in a given year or from a given activity is reflected. In other cases the data may only represent a small fraction of the number of cases that were actually diagnosed in a certain disease category or at a specific activity. As we improve our reportable disease system, this will be less of a problem; and the data reported will more accurately reflect the actual disease burden.

### **Our Future Commitment**

As we look to the future, we are seeking to develop useful and friendly technology to increase both the efficiency and effectiveness of our disease and non-battle injury surveillance system. This is a significant challenge in an age of resource constraint and burgeoning technology. Customer service and compliance continue to be important issues in implementing a successful system. The combination of the technical benefits of the NDRS and the current policy in the MER instruction will better equip our customers and enhance our partnership in disease and non-battle injury surveillance. We shall continue to improve surveillance policy and products based on customer recommendations and current requirements.

## **OVERVIEW**

This report presents descriptive statistics of communicable diseases reported among active Navy and Marine Corps personnel. It is intended as a reference document for operational commanders, health planners, researchers, investigators, policy makers, and others who are concerned with the public health implications of these diseases. All material in this report is unclassified.

Many factors can affect disease occurrence in Naval forces from year to year. These include the advent of a new vaccine, improved personal protection measures, better control of the environment, decreased or increased deployments to areas of risk, changing cultural values, and the success of prevention programs. We in the preventive medicine community can have our greatest impact by developing, implementing, improving, and maintaining effective prevention programs.

### **SECTION 1 - Disease Frequency, USN/USMC**

The first two tables of this report provide the frequencies or the actual number of cases of diseases in the Navy and Marine Corps based on reports received from Naval Medical activities worldwide from 1988-1997. The two major statistics used to express disease burden are frequencies and rates. A frequency is the total number of cases in a population. In this case, all active duty Navy and Marine Corps personnel are considered the population.

### **SECTION 2 - Disease Incidence Rate, USN/USMC**

Disease incidence, as noted in the tables in this section, indicate the number of cases per a certain population in a specified period of time. In this report the denominator chosen for the incidence rate is 100,000.

In 1997, the three diseases with the highest incidence rates (cases/ 100,000) reported via the NDRS, were chlamydia (59.2 for Navy personnel and 126.9 for Marines), gonorrhea (25.6 for Navy, 34.3 for Marines), and animal bites which required administration of rabies vaccine (13.6 for Navy and 26.9 for Marines). Reporting of chlamydia and gonorrhea did not begin until October of 1997 so trends cannot be examined, but adding these diseases to the list of reportable events will give a better understanding of the disease burden from sexually transmitted diseases. The bite incidence rates represent a large increase over prior years. Whether this represents an actual increase or is a result of better reporting is not clear.

### **SECTION 3 - Ten Most Commonly Reported Communicable Diseases by Frequency** **SECTION 4 - Ten Most Commonly Reported Communicable Diseases by Incidence**

The tables in Sections 3 and 4 list the most commonly reported diseases from 1988 to 1997 in frequencies and incidence rates. In general, these diseases represent a large part of the disease burden in days lost and medical costs. Many of these diseases can also be seen as a part of an epidemic that could compromise readiness. However, there can be other less often reported diseases such as meningococcal meningitis which can be a significant disease burden with only a few cases, though not as much of an outbreak risk. Control of both is essential for an overall successful disease prevention program.

## **SECTION 5 - Frequency by Geographic Area**

The geographic areas in this report are the areas of responsibility (AORs) of the four Navy Environmental and Preventive Medicine Units (NEPMUs). Medical Event Reports are sent to the NEPMUs, then forwarded to the Navy Environmental Health Center (NAENVIRHLHCEN) which collates, analyzes, and reports the analyzed data back to the originating activities. The AORs of NEPMU2 in Norfolk, VA, and NEPMU5 in San Diego, CA, have the largest number of installations and ships; consequently, they receive the most reports, as seen in tables 9-13 and figures 5-9. Though NEPMU6 in Pearl Harbor, HI, and NEPMU7 in Sigonella, IT, have less personnel and activities in their AORs, they represent the major areas of deployment.

## **SECTION 6 - Enteric Diseases**

Enteric diseases continue to be a primary concern in maintaining readiness. Water and food-borne illnesses can immobilize a military unit in a short period of time. Fortunately, the frequency and incidence rate of hepatitis A has been greatly reduced over the last 10 years. For the enteric diseases described in the tables and figures of this section, continued vigilance with the water and food supply is required.

## **SECTION 7 - Sexually Transmitted Diseases (STDs)**

Chancroid, chlamydia, gonorrhea, hepatitis B, lymphogranuloma venereum and syphilis are compared in tables 16 and 17 and figures 12 and 13. Syphilis has traditionally been the leading reportable sexually transmitted disease (STD) in the Navy and Marine Corps. However, in 1997 chlamydia and gonorrhea were added to the list of reportable diseases and quickly showed that they would not only be the most reportable STD, but the most commonly reported of all the reportable diseases. HIV cases are not represented in this report. HIV infection is reported by a separate system, not through Disease Alert Reports (DARs) or Medical Event Reports (MERs).

## **SECTION 8 - Vaccine Preventable Diseases**

Over the past 10 years the incidence of hepatitis A declined by about 75% in Navy personnel. The hepatitis A vaccine was first introduced in 1995, and its use has been gradually increasing. In both the Navy and Marine Corps there has been a drop in the number of cases between 1995 and 1997. The decline in varicella among Navy personnel has been more dramatic, as shown in the figures in this section. It declined, from a high of 1181 cases in 1989 to 292 cases in 1995, the year the vaccine was first administered to recruits. The number of cases further declined to 38 in 1996 and 10 in 1997, illustrating the incremental benefit of the vaccination program. The Marine Corps' experience with varicella is similar. Vaccines remain one of the most important means for preventing disease with hepatitis A, hepatitis B, and varicella cases showing a rapid decline as vaccine use has increased.

## **SECTION 9 - Vector-borne Diseases**

The tables and figures in this section report cases of Vector-borne diseases. The most common vector-borne diseases in the Navy and Marine Corps are malaria and Lyme disease. The number of reported malaria cases among Navy personnel has remained relatively constant for the past five years, while a large increase in cases among Marines occurred in 1997. Conversely, the number of Lyme disease cases fell from 55 (in 1993) to five (in 1997) for Marines, while its reported incidence increased in Navy personnel.

## **SECTION 10 - Comparison With Defense Medical Epidemiologic Database (DMED)**

The completeness and usefulness of the data in NDRS is totally dependent upon what is reported to NAVENVIRHLTHCEN. In order to gauge the amount of under reporting in the system, the number of reported cases of viral meningitis and malaria were compared to the Defense Medical Epidemiologic Database (DMED) inpatient data. DMED data are derived from Standard Inpatient Data Record (SIDR) reports. DMED is an online DoD database containing Tri-Service data which can be used by public health and research personnel to evaluate the health of active duty members. These diagnoses were chosen since they should result in an inpatient record that is entered into the DMED system. As presented in the two graphs, the NDRS capture of malaria cases in Navy and Marine personnel has improved to the point where NDRS now reports more cases than DMED.

The system has not worked as well with viral meningitis. In 1997 only about 70% of cases for Marine Corps and 50% for Navy personnel were reported compared to DMED. However, there has been a general improvement in reporting over the past eight years. In addition, one component leading to under reporting may be the fact that cases sent to NAVENVIRHLTHCEN are not included in NDRS publications until they have been confirmed.

We anticipate these positive trends will continue as more reporting sites are trained in the use of the NDRS software and receive the proper equipment to implement the program.

SECTION 1

DISEASE FREQUENCY, USN/USMC

Table 1. Disease Frequency, USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Amebiasis	5	1	31	17	10	2	1	3	3	1	74
Bites, Non-venomous rabies vaccination given	54	58	48	44	50	38	37	24	34	53	440
Bites, venomous	1	3	3	3	5	5	2	1	0	3	26
Brucellosis	0	0	1	0	1	0	0	2	0	0	4
Campylobacter	0	0	0	0	4	0	2	1	5	1	13
Chancroid	2	0	0	1	4	32	2	4	1	4	50
Chlamydia*	-	-	-	-	-	-	-	-	-	231	231
Coccidioidomycosis	2	2	1	0	5	10	8	2	9	0	39
Dengue Fever	2	52	5	13	20	1	1	7	1	1	103
E. coli 0157:H7 infection *	-	-	-	-	-	-	1	-	-	0	1
Encephalitis	0	1	0	0	1	0	0	1	3	4	10
Ehrlichiosis	0	0	0	0	0	0	0	0	0	0	0
Gonorrhea*	-	-	-	-	-	-	-	-	-	100	100
Giardiasis	3	14	40	32	27	31	18	8	9	21	203
Gullian-Barre Syndrome	0	1	0	1	0	4	3	1	1	1	12
Hepatitis A	92	117	67	84	44	27	37	24	31	19	542
Hepatitis B	113	117	75	67	57	37	39	25	16	11	557
Hepatitis C	0	14	2	10	2	9	6	7	8	3	61
Legionellosis	1	0	0	1	1	0	1	1	1	1	7
Leishmaniasis	0	0	0	1	1	0	0	1	0	2	5
Leprosy (Hansen's Disease)	2	0	0	0	0	0	0	0	0	0	2
Leptospirosis	0	1	0	0	1	0	0	0	0	1	3
Lyme Disease	2	0	19	5	3	5	2	7	19	9	71
Lymphogranuloma venereum	0	1	46	30	9	14	9	4	5	3	121
Malaria	8	7	15	5	10	3	6	3	5	6	68
Measles	1	0	8	3	2	1	1	0	0	0	16
Meningitis (viral)	0	27	12	15	29	20	21	25	25	21	195
Meningococcal disease	6	6	3	2	3	2	4	0	1	0	27
Mumps	1	1	50	11	23	13	5	5	1	5	115
Paratyphoid Fever	1	0	0	0	0	0	0	0	0	0	1
Pertussis	0	0	0	0	0	0	0	0	2	0	2
Psittacosis	0	0	1	0	0	0	0	0	1	0	2
Rheumatic Fever	0	1	0	0	0	0	1	0	0	1	3
RMSF	0	1	1	2	0	0	0	2	0	0	6
Rubella	0	0	0	0	1	0	0	0	0	0	1
Salmonellosis	52	8	46	79	66	27	24	24	20	17	363
Schistosomiasis	0	0	0	0	0	1	0	0	0	0	1
Shigellosis	29	2	17	18	9	10	29	21	9	8	152
Strep, Invasive	0	0	0	0	0	0	0	1	0	0	1
Syphilis	152	17	153	142	109	108	84	55	37	30	896
Toxic Shock Syndrome	0	2	0	0	0	1	2	0	0	3	8
Toxoplasmosis	0	0	1	0	0	0	0	0	0	0	1
Trypanosomiasis	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis (Pulmonary)	13	2	4	7	9	6	8	8	8	5	70
Typhoid Fever	1	0	3	3	1	0	0	0	0	0	8
Varicella	117	1181	919	767	402	473	234	292	38	10	4433
Total Population	592,570	592,652	579,417	570,262	541,886	509,950	468,662	434,617	416,735	387,774	

\*Reporting requirement began October 1997

Table 2. Disease Frequency, USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Amebiasis	0	0	2	1	1	0	3	0	0	0	7
Bites, Non-venomous rabies vaccination given	8	16	21	25	18	15	6	8	14	47	178
Bites, venomous	3	4	7	7	10	12	7	4	5	5	64
Brucellosis	0	0	0	0	0	0	0	0	0	0	0
Campylobacter	0	0	1	1	3	1	6	0	1	0	13
Chancroid	0	0	1	1	0	1	0	0	0	2	5
Chlamydia*	-	-	-	-	-	-	-	-	-	222	222
Coccidioidomycosis	0	2	0	0	2	0	1	1	1	1	8
Dengue Fever	0	0	0	1	0	0	0	4	0	0	5
E. coli 0157:H7 infection *	-	-	-	-	-	-	-	-	-	2	2
Encephalitis	0	0	0	2	2	0	0	0	0	1	5
Ehrlichiosis	0	0	0	7	3	0	0	0	1	0	11
Gonorrhea*	-	-	-	-	-	-	-	-	-	60	60
Giardiasis	0	2	5	17	7	8	3	2	8	2	54
Gullian-Barre Syndrome	0	0	0	1	1	0	1	0	0	0	3
Hepatitis A	22	32	27	26	3	8	7	4	7	2	138
Hepatitis B	33	35	25	20	23	15	7	6	9	4	177
Hepatitis C	0	2	1	2	2	2	0	0	1	0	10
Legionellosis	0	0	0	0	1	0	0	0	0	0	1
Leishmaniasis	0	0	0	1	1	0	0	1	0	0	3
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	0	0	0
Leptospirosis	0	17	0	0	0	1	3	0	2	5	28
Lyme Disease	0	0	14	27	11	55	4	13	21	7	152
Lymphogranuloma venereum	0	0	1	1	2	3	6	3	4	24	44
Malaria	45	28	49	12	5	46	9	3	2	5	204
Measles	0	0	0	1	0	1	0	0	0	0	2
Meningitis (viral)	7	7	1	7	7	5	9	8	8	8	67
Meningococcal disease	1	6	1	4	2	0	0	1	1	0	16
Mumps	0	0	6	0	22	4	6	0	2	0	40
Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	0	0	0	0	0
Psittacosis	1	0	1	0	0	0	0	0	0	1	3
Rheumatic Fever	0	0	0	1	0	0	0	0	0	0	1
RMSF	0	0	6	7	6	3	0	0	1	7	30
Rubella	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	8	4	15	13	6	11	9	7	5	6	84
Schistosomiasis	0	0	0	0	0	0	0	0	0	0	0
Shigellosis	13	0	3	4	6	12	11	2	2	2	55
Strep, Invasive	0	0	0	0	0	0	0	0	0	0	0
Syphilis	38	7	43	33	65	24	18	8	9	9	254
Toxic Shock Syndrome	0	1	0	0	0	0	0	0	1	0	2
Toxoplasmosis	0	0	0	0	0	0	0	6	0	0	6
Trypanosomiasis	0	0	0	0	0	0	1	0	0	0	1
Tuberculosis (Pulmonary)	2	0	1	2	4	0	2	1	1	1	14
Typhoid Fever	1	0	0	0	0	0	0	0	0	0	1
Varicella	2	169	317	274	191	60	52	67	11	2	1145
Total Population	197,350	196,956	196,652	194,040	184,529	178,379	174,158	174,639	174,883	171,637	

\*Reporting requirement began October 1997

## SECTION 2

### DISEASE INCIDENCE RATES, USN/USMC

Table 3. Disease Incidence Rates (Cases/100,000), USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Amebiasis	.84	.17	5.35	2.98	1.85	.39	.21	.69	.72	.26
Bites, Non-venomous rabies vaccination given	9.11	9.79	8.28	7.72	9.23	7.45	7.89	5.52	8.16	13.66
Bites, venomous	.17	.51	.52	.53	.92	.98	.43	.23	0	.77
Brucellosis	0	0	.17	0	.18	0	0	.46	0	0
Campylobacter	0	0	.17	0	.18	0	0	.46	0	0
Chancroid	.34	0	0	.18	.74	6.28	.43	.92	.24	1.03
Chlamydia*	-	-	-	-	-	-	-	-	-	59.57
Coccidioidomycosis	.34	.34	.17	0	.92	1.96	1.71	.46	2.16	0
Dengue Fever	.34	8.77	.86	2.28	3.69	.20	.21	1.61	.24	.26
E. coli 0157:H7 infection *	-	-	-	-	-	-	.21	-	-	0
Encephalitis	0	.17	0	0	.18	0	0	.23	.72	1.03
Ehrlichiosis	0	0	0	0	0	0	0	0	0	0
Gonorrhea*	-	-	-	-	-	-	-	-	-	25.64
Giardiasis	.51	2.36	6.90	5.61	4.98	6.08	3.84	1.84	2.16	5.42
Gullian-Barre Syndrome	0	.17	0	.18	0	.78	.64	.23	.24	.26
Hepatitis A	15.53	19.74	11.56	14.73	8.12	5.29	7.89	5.98	7.44	5.42
Hepatitis B	19.07	19.74	12.94	11.75	10.52	7.26	8.32	6.21	3.84	2.84
Hepatitis C	0	2.36	.35	1.75	.37	1.76	1.28	1.61	1.92	.77
Legionellosis	.17	0	0	.18	.18	0	.21	.23	.24	.26
Leishmaniasis	0	0	0	.18	.18	0	0	.23	0	.51
Leprosy (Hansen's Disease)	.34	0	0	0	0	0	0	0	0	0
Leptospirosis	0	.17	0	0	.18	0	0	0	0	.26
Lyme Disease	.34	0	3.28	.88	.55	.98	.43	1.84	4.56	2.31
Lymphogranuloma venereum	0	.17	7.94	5.26	1.66	2.75	1.92	.92	1.20	.77
Malaria	1.35	1.18	2.59	.88	1.85	.59	1.28	.92	1.20	1.54
Measles	.17	0	1.38	.53	.37	.20	.21	0	0	0
Meningitis (viral)	0	4.56	2.07	3.16	5.35	3.92	4.48	5.75	6.00	5.38
Meningococcal disease	1.01	1.01	.52	.35	.55	.39	.85	0	.24	0
Mumps	.17	.17	8.63	1.93	4.24	2.55	1.07	1.38	.24	1.55
Paratyphoid Fever	.17	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0	0	.37	0	0	0	.48	0
Psittacosis	0	0	.17	0	0	0	0	0	.24	0
Rheumatic Fever	0	.17	0	0	0	0	.21	0	0	.26
RMSF	0	.17	.17	.35	0	0	0	.46	0	0
Rubella	0	0	0	0	.18	0	0	0	0	0
Salmonellosis	8.78	1.35	7.94	13.85	12.18	5.29	5.33	5.52	4.80	4.38
Schistosomiasis	0	0	0	0	0	.20	0	0	0	0
Shigellosis	4.89	.34	2.93	3.16	1.66	1.96	6.19	4.83	2.16	2.31
Strep, Invasive	0	0	0	0	0	0	0	.23	0	0
Syphilis	25.65	2.87	26.41	24.90	20.11	21.18	17.92	14.73	7.77	7.48
Toxic Shock Syndrome	0	.34	0	0	0	.20	.43	0	0	.77
Toxoplasmosis	0	0	.17	0	0	0	0	0	0	0
Trypanosomiasis	0	0	0	0	0	0	0	0	0	0
Tuberculosis (Pulmonary)	2.19	.34	.86	1.23	1.85	1.18	1.71	1.84	1.92	1.54
Typhoid Fever	.17	0	.52	.53	.18	0	0	0	0	0
Varicella	19.74	199.27	158.61	134.50	74.19	92.75	49.93	67.19	9.12	3.85
<b>Total Population</b>	<b>592,570</b>	<b>592,652</b>	<b>579,417</b>	<b>570,262</b>	<b>541,886</b>	<b>509,950</b>	<b>468,662</b>	<b>434,617</b>	<b>416,735</b>	<b>387,774</b>

\*Reporting requirement began October 1997

Table 4. Disease Incidence Rates (Cases/100,000), USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Amebiasis	0	0	1.02	.52	.54	0	1.72	0	0	0
Bites, Non-venomous rabies vaccination given	4.05	8.12	10.68	12.88	9.75	8.41	3.45	4.58	8.01	26.88
Bites, venomous	1.52	2.03	3.56	3.61	5.42	6.73	4.02	2.29	2.86	2.86
Brucellosis	0	0	0	0	0	0	0	0	0	0
Campylobacter	0	0	.51	.52	1.63	.56	3.45	0	.57	0
Chancroid	0	0	.51	.52	0	.56	0	0	0	1.14
Chlamydia*	-	-	-	-	-	-	-	-	-	126.94
Coccidioidomycosis	0	0	0	0	0	0	.57	.57	.57	.57
Dengue Fever	0	0	0	.52	0	0	0	2.29	0	0
E. coli 0157:H7 infection *	-	-	-	-	-	-	-	-	-	1.14
Encephalitis	0	0	0	1.03	1.08	0	0	0	0	.57
Ehrlichiosis	0	0	0	3.63	1.63	0	0	0	.57	0
Gonorrhea*	-	-	-	-	-	-	-	-	-	34.31
Giardiasis	0	1.02	2.54	8.76	3.79	4.48	1.72	1.15	4.57	1.14
Gullian-Barre Syndrome	0	0	0	.52	.54	0	.57	0	0	0
Hepatitis A	11.15	16.25	13.73	13.40	1.63	4.48	4.02	2.29	4.00	1.72
Hepatitis B	16.72	17.77	12.71	10.31	12.46	8.41	4.02	3.44	5.15	2.29
Hepatitis C	0	1.02	.51	1.03	1.08	1.12	0	0	.57	0
Legionellosis	0	0	0	0	.54	0	0	0	0	0
Leishmaniasis	0	0	0	.52	.54	0	0	.57	0	0
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	0	0
Leptospirosis	0	8.63	0	0	0	.56	0	0	0	.57
Lyme Disease	0	0	7.12	13.91	5.96	30.83	2.30	7.44	12.01	4.57
Lymphogranuloma venereum	0	0	.51	.52	1.08	1.68	3.45	1.72	2.29	4.57
Malaria	22.80	14.22	24.92	6.18	2.71	31.39	5.17	1.72	1.14	2.86
Measles	0	0	0	.52	0	.56	0	0	0	0
Meningitis (viral)	3.55	3.55	.51	3.61	3.79	4.48	5.17	4.58	4.57	4.57
Meningococcal disease	.51	3.05	.51	2.06	1.08	0	0	.57	.57	0
Mumps	0	0	3.05	0	11.92	2.80	3.45	0	1.14	0
Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	0	0	0	0
Psittacosis	.51	0	.51	0	0	0	0	0	0	.57
Rheumatic Fever	0	0	0	.52	0	0	0	0	0	0
RMSF	0	0	3.05	3.61	3.25	1.68	0	0	.57	4.00
Rubella	0	0	0	0	0	0	0	0	0	0
Salmonellosis	4.05	2.03	7.63	6.70	3.25	6.17	5.17	4.01	2.86	5.15
Schistosomiasis	0	0	0	0	0	0	0	0	0	0
Shigellosis	6.59	0	0	2.06	3.25	6.73	6.32	1.15	1.14	1.14
Strep, Invasive	0	0	0	0	0	0	0	0	0	0
Syphilis	19.26	.51	21.87	17.01	35.22	13.45	10.34	4.58	5.15	5.72
Toxic Shock Syndrome	0	.51	0	0	0	0	0	0	.57	0
Toxoplasmosis	0	0	.51	0	0	0	0	3.44	0	0
Trypanosomiasis	0	0	0	0	0	0	.57	0	0	0
Tuberculosis (Pulmonary)	1.01	0	.51	1.03	2.17	0	1.15	.57	.57	.57
Typhoid Fever	.51	0	0	0	0	0	0	0	0	0
Varicella	1.01	85.81	161.20	141.21	103.51	33.64	29.86	38.36	6.29	2.29
<b>Total Population</b>	<b>197,350</b>	<b>196,956</b>	<b>196,652</b>	<b>194,040</b>	<b>184,529</b>	<b>178,379</b>	<b>174,158</b>	<b>174,639</b>	<b>174,83</b>	<b>171,637</b>

\*Reporting requirement began October 1997

### SECTION 3

## TEN MOST COMMONLY REPORTED COMMUNICABLE DISEASES BY FREQUENCY

Table 5. Ten Most Commonly Reported Communicable Diseases by Frequency, USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Varicella	117	1181	919	767	402	473	234	292	38	10	4433
Syphilis	152	17	153	142	109	108	84	64	37	30	896
Hepatitis B	113	117	75	67	57	37	39	25	16	11	557
Hepatitis A	92	117	67	84	44	27	37	24	31	21	544
Salmonellosis	52	8	46	79	66	27	24	24	20	17	363
Chlamydia*	-	-	-	-	-	-	-	-	-	231	231
Giardiasis	3	14	40	32	27	31	18	8	9	21	203
Meningitis (Viral)	0	27	12	15	29	20	21	25	25	21	195
Shigellosis	29	2	17	18	9	10	29	21	9	8	152
Gonorrhea*	-	-	-	-	-	-	-	-	-	100	100

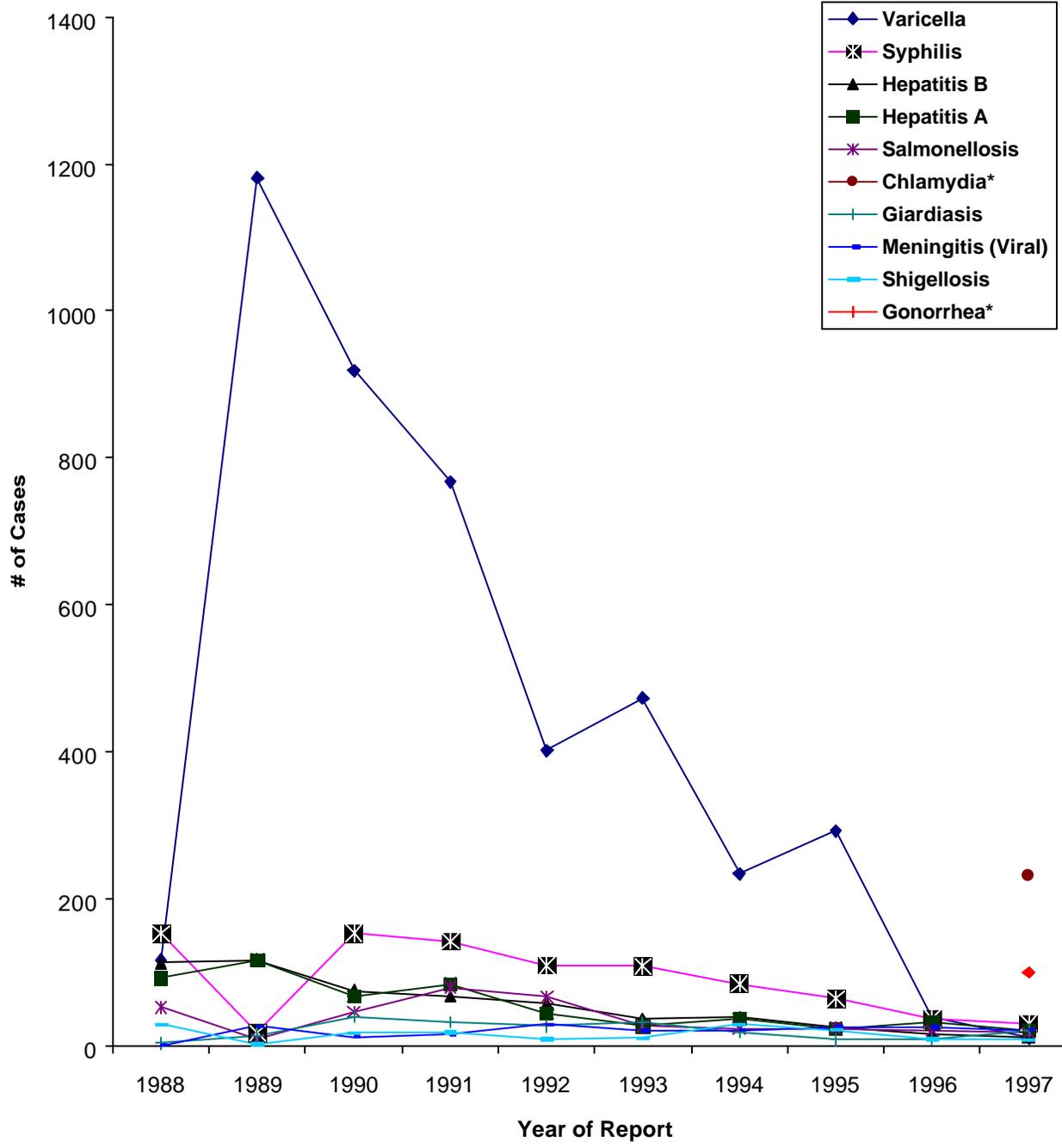
\*Reporting requirement began October 1997

Table 6. Ten Most Commonly Reported Communicable Diseases by Frequency, USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Varicella	2	169	317	274	191	60	52	67	11	2	1145
Syphilis	38	7	43	33	65	24	18	8	9	9	254
Chlamydia*	-	-	-	-	-	-	-	-	-	222	222
Malaria	45	28	49	12	5	46	9	3	2	5	204
Hepatitis B	33	35	25	20	23	15	7	6	9	4	177
Lyme Disease	0	0	14	27	11	55	4	13	21	7	152
Hepatitis A	22	32	27	26	3	8	7	4	7	2	138
Salmonellosis	8	4	15	13	6	11	9	7	5	6	84
Meningitis (Viral)	7	7	1	7	7	5	9	8	8	8	67
Gonorrhea*	-	-	-	-	-	-	-	-	-	60	60

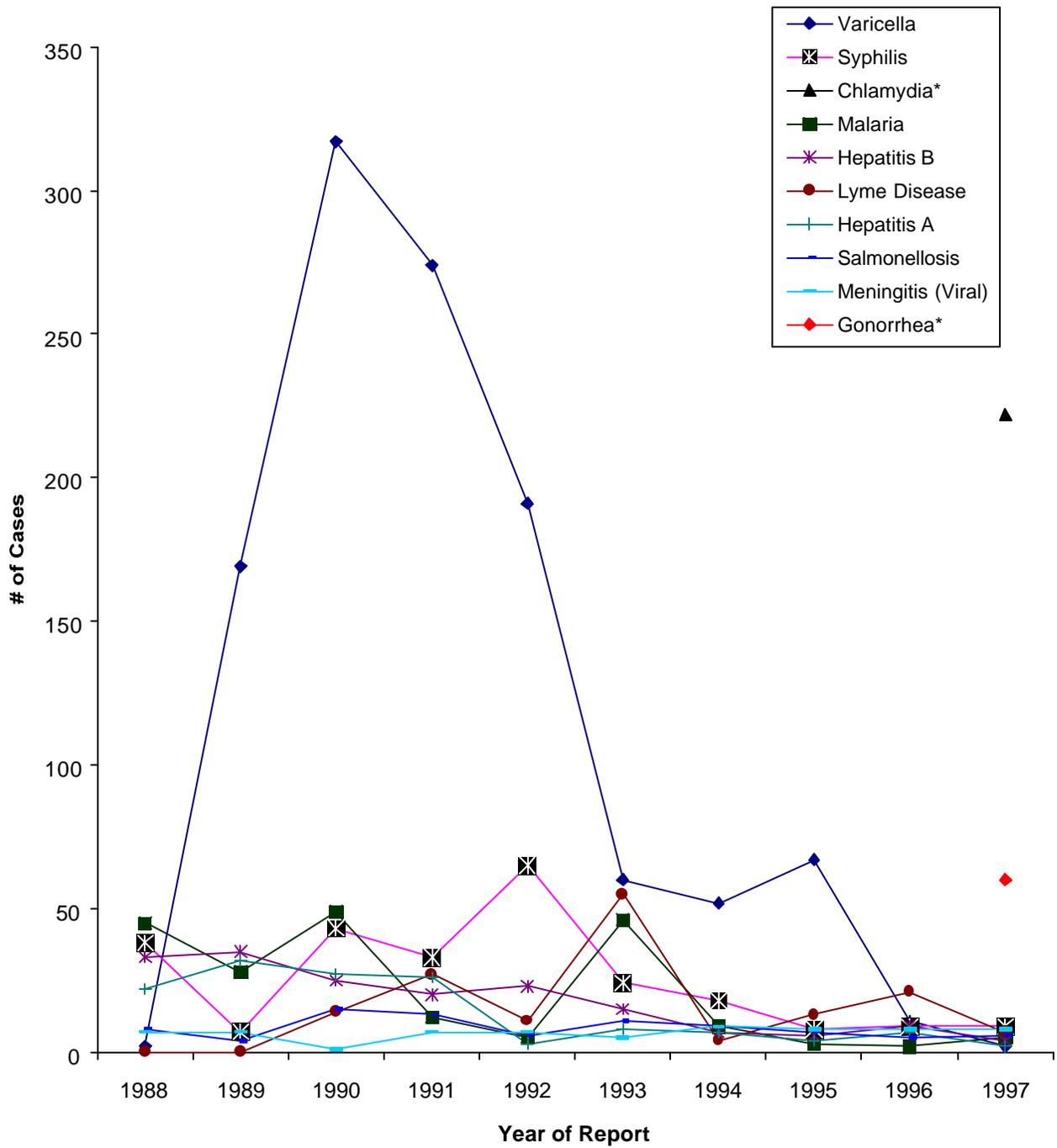
\*Reporting requirement began October 1997

Figure 1. Ten Most Commonly Reported Communicable Diseases by Frequency, USN, 1988-1997



\*Reporting requirement began October 1997

Figure 2. Ten Most Commonly Reported Communicable Diseases by Frequency, USMC, 1988-1997



\*Reporting requirement began October 1997

SECTION 4

TEN MOST COMMONLY REPORTED COMMUNICABLE DISEASES BY INCIDENCE

Table 7. Ten Most Commonly Reported Communicable Diseases (Cases/100,000), USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Varicella	19.74	199.27	158.61	134.50	74.19	92.75	49.93	67.19	9.12	3.85
Syphilis	25.65	2.87	26.41	24.90	20.11	21.18	17.92	14.73	7.77	7.48
Hepatitis B	19.07	19.74	12.94	11.75	10.52	7.26	8.32	6.21	3.84	2.84
Hepatitis A	15.53	19.74	11.56	14.73	8.12	5.29	7.89	5.98	7.44	5.42
Salmonellosis	8.78	1.35	7.94	13.85	12.18	5.29	5.33	5.52	4.80	4.38
Chlamydia*	-	-	-	-	-	-	-	-	-	59.57
Giardiasis	.51	2.36	6.90	5.61	4.98	6.08	3.84	1.84	2.16	5.42
Meningitis (viral)	0	4.56	2.07	3.16	5.53	3.92	4.48	5.75	6.0	5.38
Shigellosis	4.89	.34	2.93	3.16	1.66	1.96	6.19	4.83	2.16	2.31
Gonorrhea*	-	-	-	-	-	-	-	-	-	25.64

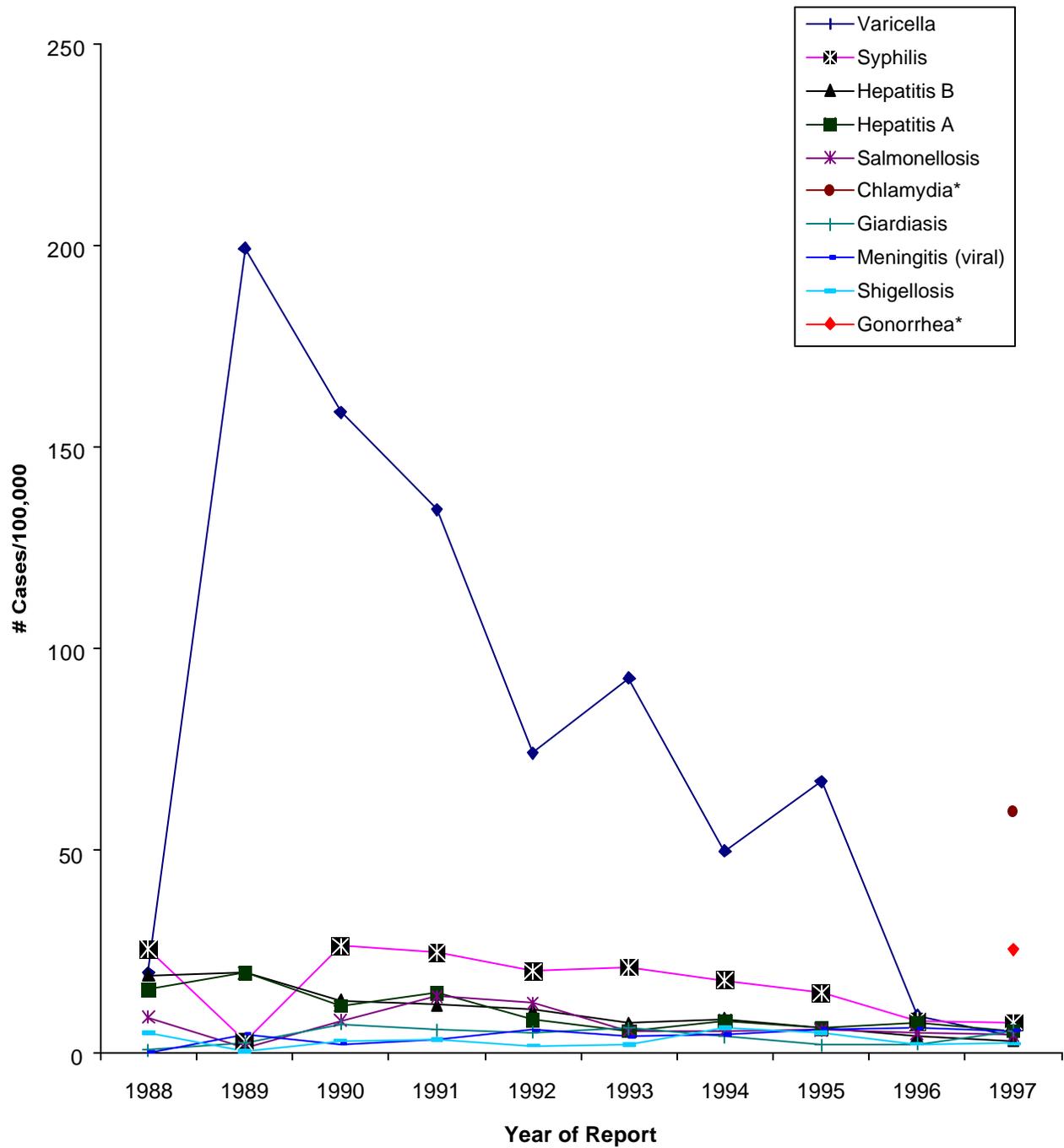
\*Reporting requirements began October 1997

Table 8. Ten Most Commonly Reported Communicable Diseases (Cases/100,000), USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Varicella	1.01	85.81	161.20	141.21	103.51	33.64	29.86	38.36	6.29	2.29
Syphilis	19.26	.51	21.87	17.01	35.22	13.45	10.34	4.58	5.15	5.72
Chlamydia*	-	-	-	-	-	-	-	-	-	126.94
Malaria	22.80	14.22	24.92	6.18	2.71	31.39	5.17	1.72	1.14	2.86
Hepatitis B	16.72	17.77	12.71	10.31	12.46	8.41	4.02	3.44	5.15	2.29
Lyme Disease	0	0	7.12	13.91	5.96	30.83	2.30	7.44	12.01	4.57
Hepatitis A	11.15	16.25	13.73	13.40	1.63	4.48	4.02	2.29	4.00	1.72
Salmonellosis	4.05	2.03	7.63	6.70	3.25	6.17	5.17	4.01	2.86	5.15
Meningitis (viral)	3.55	3.55	.51	3.61	3.79	4.48	5.17	4.58	4.57	4.57
Gonorrhea*	-	-	-	-	-	-	-	-	-	34.31

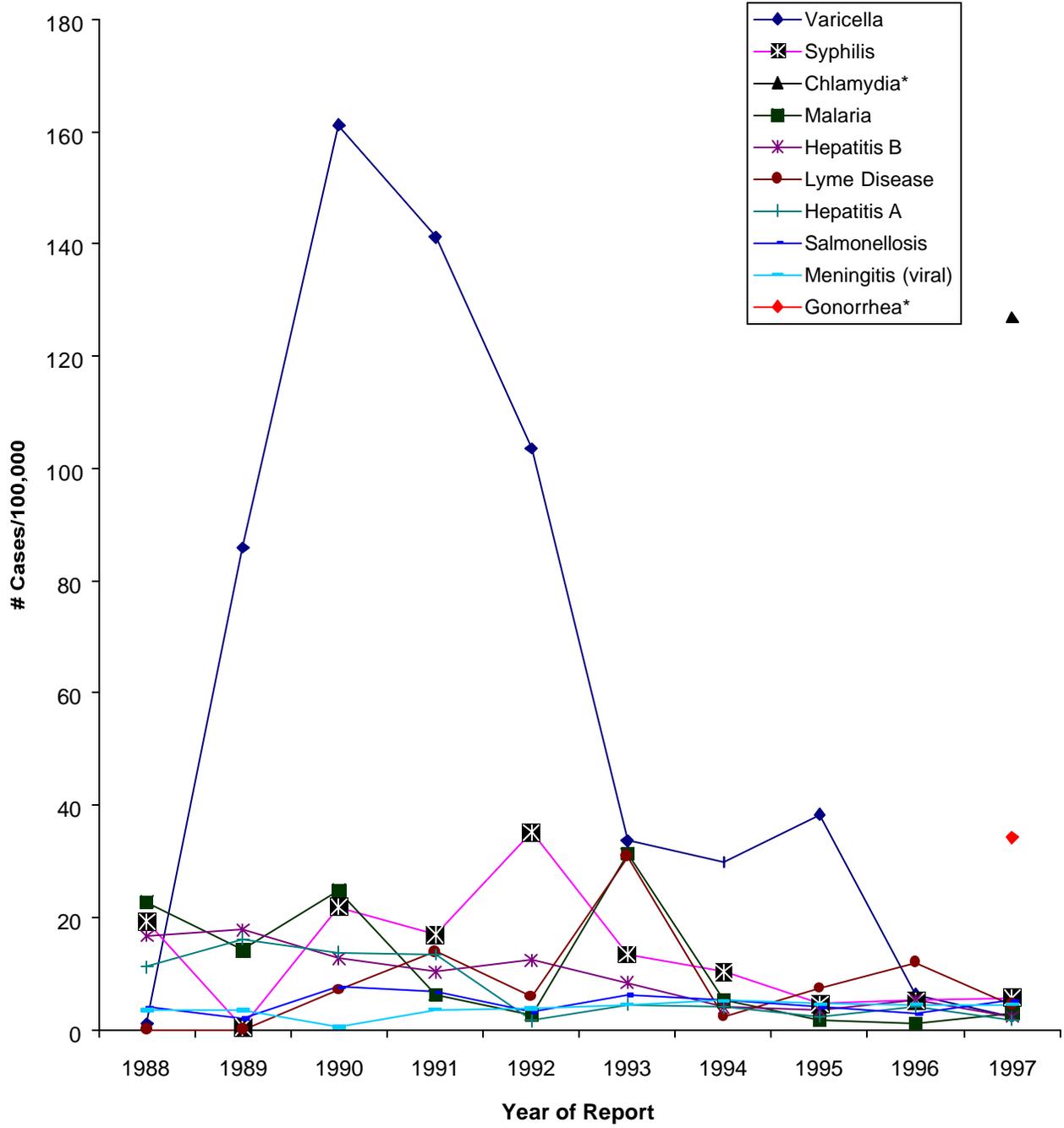
\*Reporting requirements began October 1997

Figure 3. Ten Most Commonly Reported Communicable Diseases by Incidence, USN, 1988-1997



\*Reporting requirement began October 1997

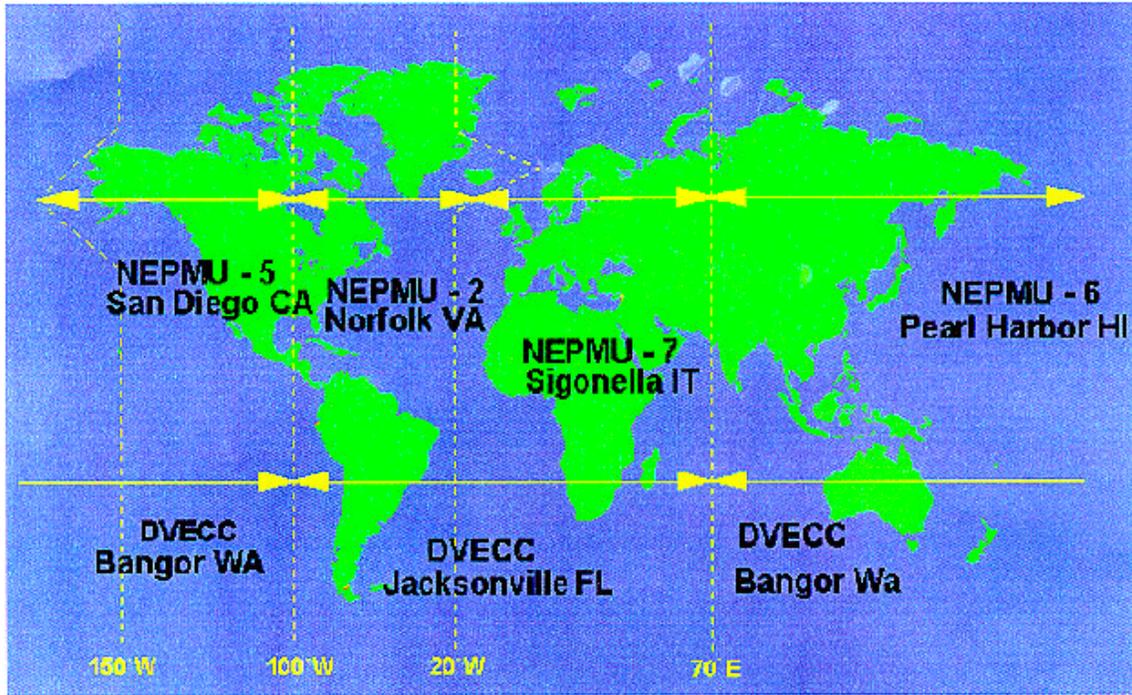
Figure 4. Ten Most Commonly Reported Communicable Diseases by Incidence, USMC, 1988-1997



\*Reporting requirement began October 1997

## SECTION 5

### FREQUENCY BY GEOGRAPHIC AREA



#### Area of Responsibility (AOR)

The AOR for NEPMU 2 (located in Norfolk, VA) is 100 W longitude east to 20 W longitude, including Iceland.

The AOR for NEPMU 5 (located in San Diego, CA) is 100 W longitude west to 150 W longitude including Alaska.

The AOR for NEPMU 6 (located in Pearl Harbor, HI) is 150 W longitude west to 70 E longitude, except Alaska.

The AOR for NEPMU 7 (located in Sigonella, IT) is 20 W longitude, except Iceland.

Table 9. Hepatitis A Cases by Geographic Area, USN/USMC, 1988-1997

	1988		1989		1990		1991		1992		1993	
	N	MC										
NEPMU 2	35	2	19	1	6	4	20	7	11	0	16	2
NEPMU 5	39	15	48	14	27	9	48	7	15	3	4	3
NEPMU 6	17	5	50	17	34	14	15	12	15	0	6	3
NEPMU 7	1	0	0	0	0	0	1	0	3	0	1	0

	1994		1995		1996		1997		Subtotal		Total
	N	MC	N	MC	N	MC	N	MC	N	MC	
NEPMU 2	12	2	9	1	8	0	7	0	143	19	162
NEPMU 5	20	5	13	3	21	5	7	2	242	66	308
NEPMU 6	2	0	1	0	2	2	1	0	143	53	196
NEPMU 7	3	0	1	0	0	0	4	0	14	0	14

Table 10. Hepatitis B Frequency by Geographic Area, USN/USMC, 1988-1997

	1988		1989		1990		1991		1992		1993	
	N	MC										
NEPMU 2	35	6	32	5	28	12	30	13	27	11	22	10
NEPMU 5	42	16	36	14	24	4	28	3	16	11	8	3
NEPMU 6	34	11	46	16	22	8	6	4	13	1	5	2
NEPMU 7	2	0	3	0	1	1	3	0	1	0	2	0

	1994		1995		1996		1997		Subtotal		Total
	N	MC	N	MC	N	MC	N	MC	N	MC	
NEPMU 2	24	0	11	2	12	1	6	3	227	63	290
NEPMU 5	11	6	11	3	4	7	1	1	181	68	249
NEPMU 6	2	1	3	1	0	1	4	0	138	42	180
NEPMU 7	2	0	0	0	0	0	0	0	14	1	15

Table 11. Salmonellosis Frequency by Geographic Area, USN/USMC, 1988-1997

	1988		1989		1990		1991		1992		1993	
	N	MC										
NEPMU 2	39	1	7	4	26	11	23	3	11	0	13	10
NEPMU 5	3	3	0	0	4	2	6	4	2	2	4	0
NEPMU 6	8	3	0	0	3	1	7	3	4	2	1	0
NEPMU 7	2	1	1	0	13	1	43	3	49	2	9	1

	1994		1995		1996		1997		Subtotal		Total
	N	MC	N	MC	N	MC	N	MC	N	MC	
NEPMU 2	13	3	13	1	8	2	8	5	161	40	201
NEPMU 5	8	5	6	4	6	2	4	0	43	22	65
NEPMU 6	1	1	0	0	2	1	2	1	28	12	40
NEPMU 7	2	0	5	2	4	0	3	0	131	10	141

Table 12. Syphilis Frequency by Geographic Area, USN/USMC, 1988-1997

	1988		1989		1990		1991		1992		1993	
	N	MC										
NEPMU 2	85	18	5	2	62	13	94	16	67	31	91	16
NEPMU 5	28	8	1	4	46	19	21	9	24	17	11	5
NEPMU 6	38	12	11	1	42	11	22	8	15	17	1	3
NEPMU 7	1	0	0	0	3	0	5	0	3	0	5	0

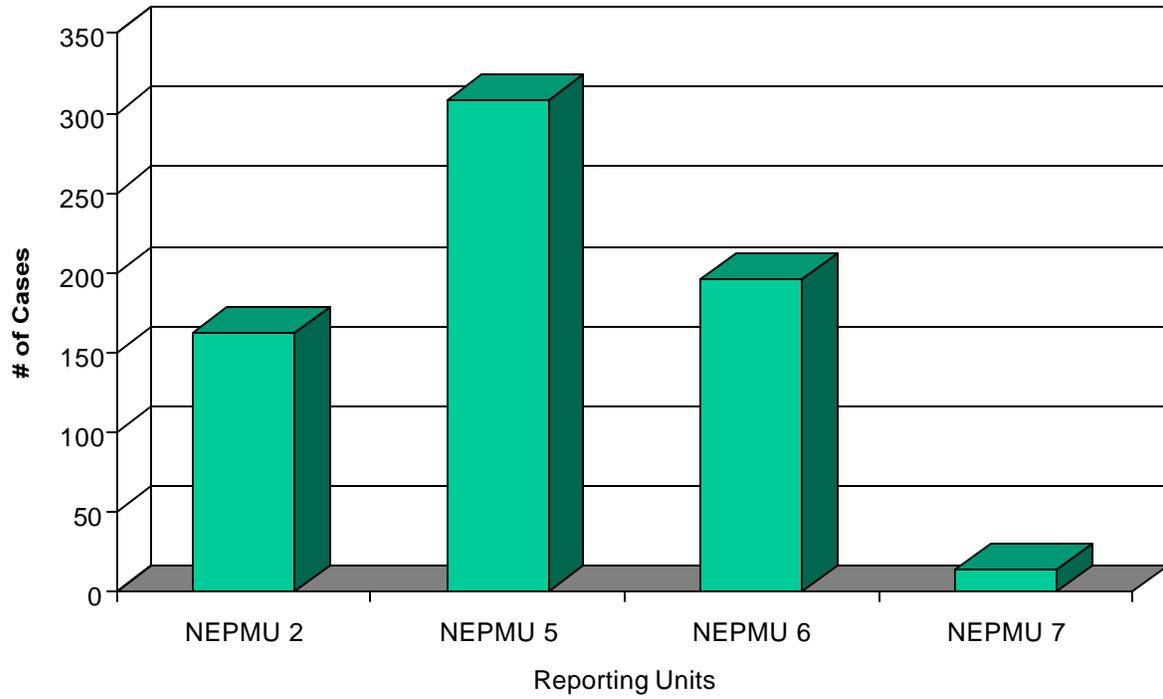
	1994		1995		1996		1997		Subtotal		Total
	N	MC	N	MC	N	MC	N	MC	N	MC	
NEPMU 2	50	8	44	2	29	0	19	4	546	110	656
NEPMU 5	25	6	5	5	7	7	7	2	175	82	257
NEPMU 6	5	4	5	1	1	2	4	3	144	62	206
NEPMU 7	4	0	1	0	0	0	3	0	25	0	25

Table 13. Varicella Frequency by Geographic Area, USN/USMC, 1988-1997

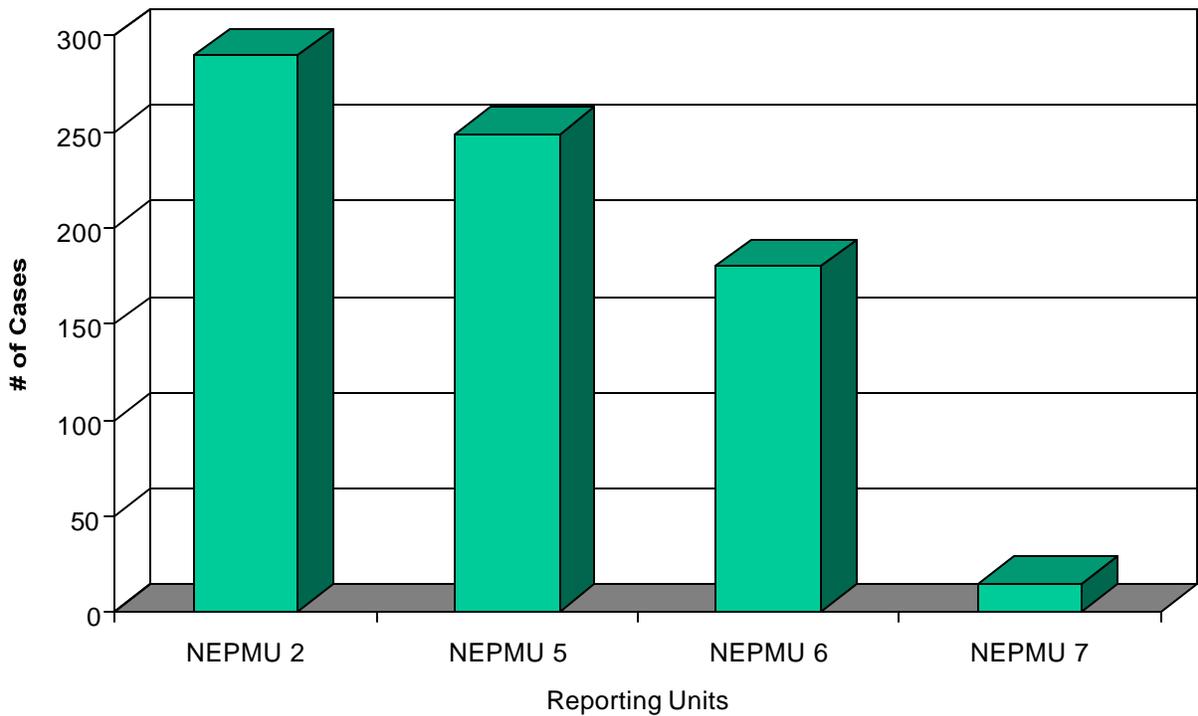
	1988		1989		1990		1991		1992		1993	
	N	MC	N	MC	N	MC	N	MC	N	MC	N	MC
NEPMU 2	95	0	899	77	615	131	456	150	182	81	301	38
NEPMU 5	18	0	241	71	243	137	256	86	161	74	119	12
NEPMU 6	3	1	35	20	45	44	41	25	48	20	44	9
NEPMU 7	1	1	6	1	16	5	14	13	11	16	9	1

	1994		1995		1996		1997		Subtotal		Total
	N	MC	N	MC	N	MC	N	MC	N	MC	
NEPMU 2	162	31	238	19	8	1	3	2	2959	530	3489
NEPMU 5	59	18	29	24	29	9	4	0	1159	431	1590
NEPMU 6	10	3	24	24	0	1	2	0	252	147	399
NEPMU 7	3	0	1	0	1	0	1	0	63	37	90

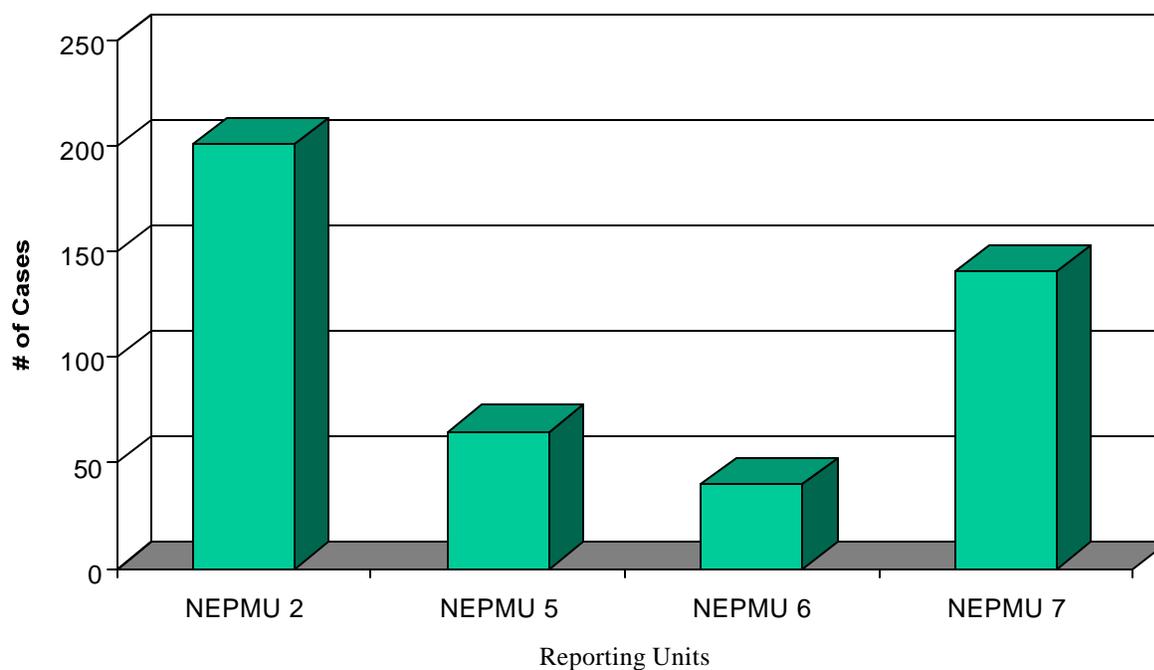
**Figure 5. Hepatitis A Frequency by Geographical Area,  
USN/USMC, 1988-1997**



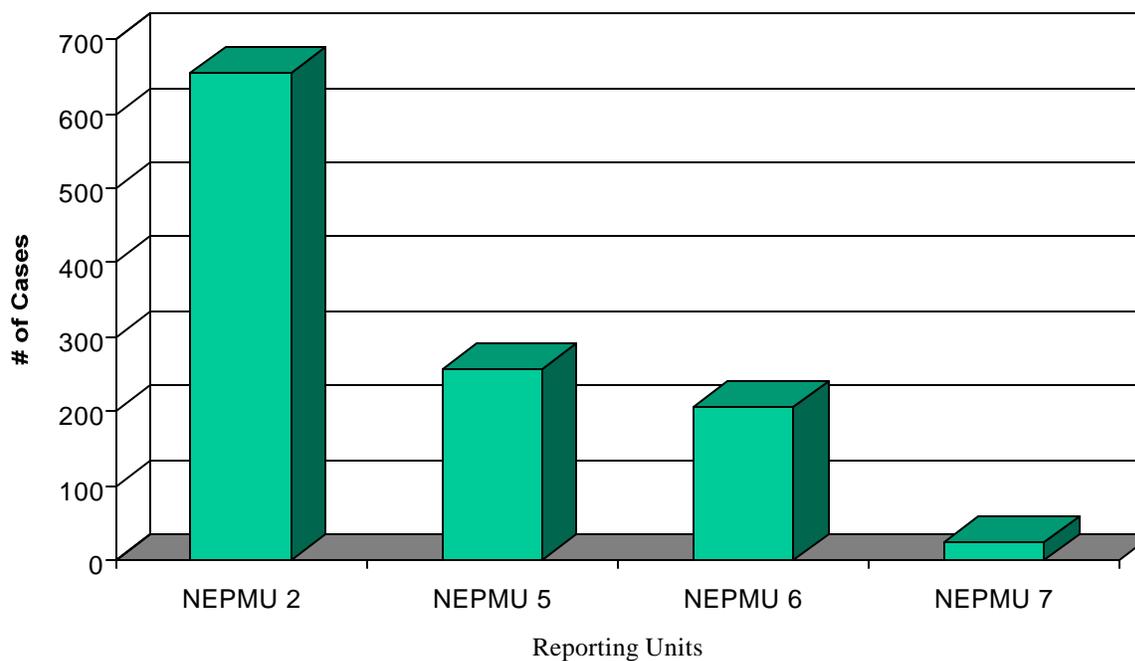
**Figure 6. Hepatitis B Frequency by Geographical Area,  
USN/USMC, 1988-1997**



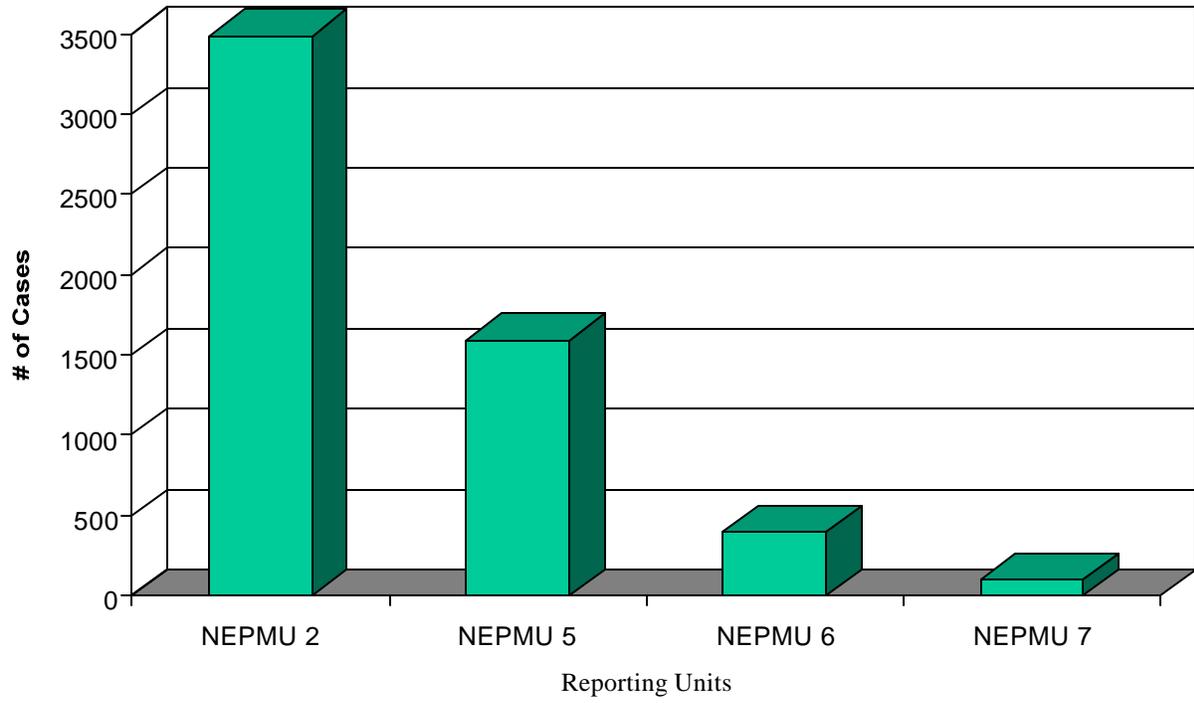
**Figure 7. Salmonellosis Frequency by Geographical Area, USN/USMC, 1988-1997**



**Figure 8. Syphilis Frequency by Geographical Area, USN/USMC, 1988-1997**



**Figure 9. Varicella Frequency by Geographical Area,  
USN/USMC, 1988-1997**



## SECTION 6

## ENTERIC DISEASES

Table 14. Number of Reported Cases of Enteric Diseases, USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
<b>Amebiasis</b>	5	1	31	17	10	2	1	3	3	1	<b>74</b>
<b>Giardiasis</b>	3	14	40	32	27	31	18	8	9	21	<b>203</b>
<b>Hepatitis A</b>	92	117	67	84	44	27	37	24	31	21	<b>544</b>
<b>Salmonellosis</b>	52	8	46	79	66	27	24	24	20	17	<b>363</b>
<b>Shigellosis</b>	29	2	17	18	9	10	29	21	9	8	<b>152</b>

Table 15. Number of Reported Cases of Enteric Diseases, USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
<b>Amebiasis</b>	0	0	2	1	1	0	3	0	0	0	<b>7</b>
<b>Giardiasis</b>	0	2	5	17	7	8	3	2	8	2	<b>54</b>
<b>Hepatitis A</b>	22	32	27	26	3	8	7	4	7	2	<b>138</b>
<b>Salmonellosis</b>	8	4	15	13	6	11	9	7	5	6	<b>84</b>
<b>Shigellosis</b>	13	0	3	4	6	12	11	2	2	2	<b>55</b>

Figure 10. Enteric Disease, USN, 1988-1997

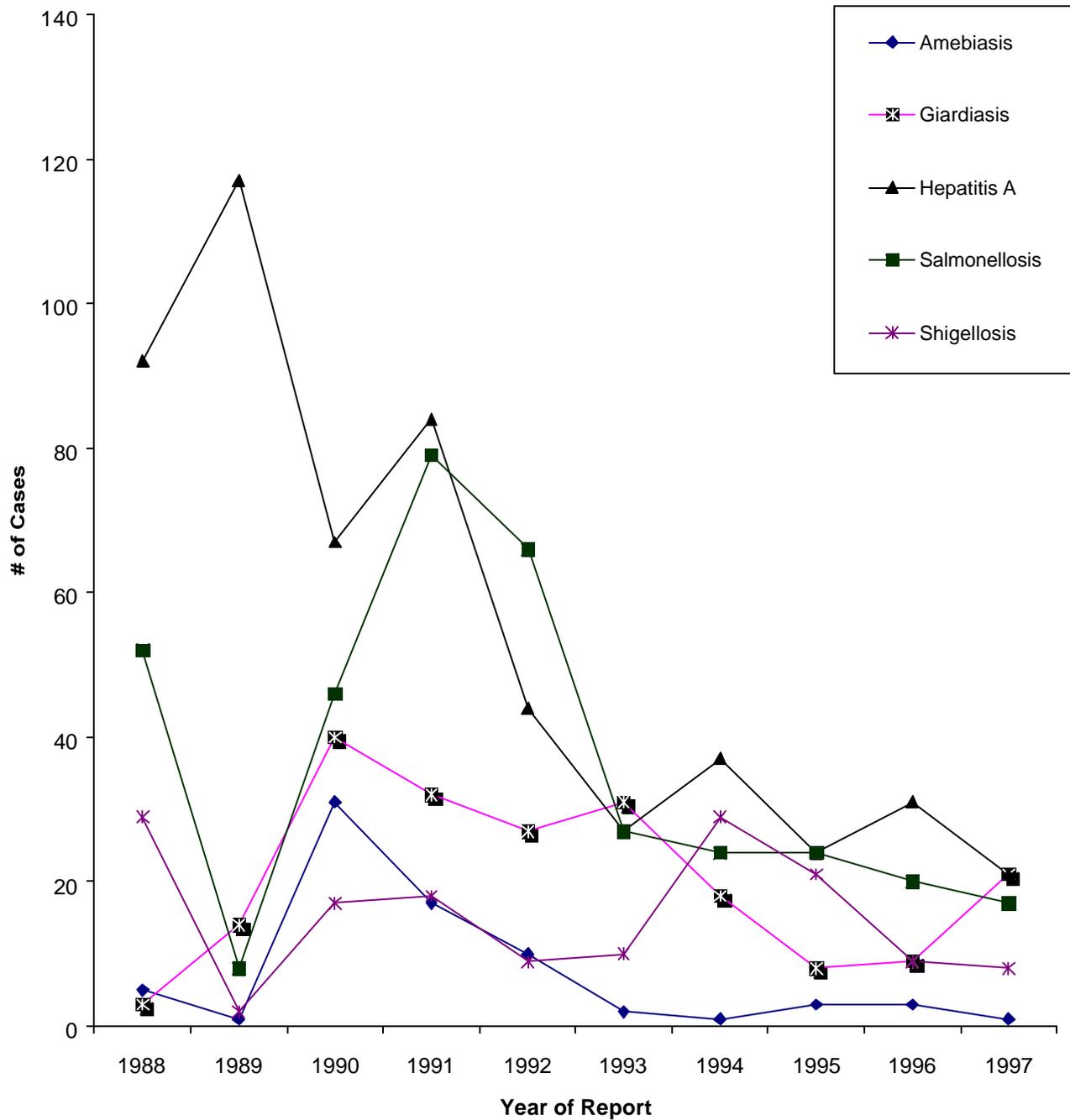
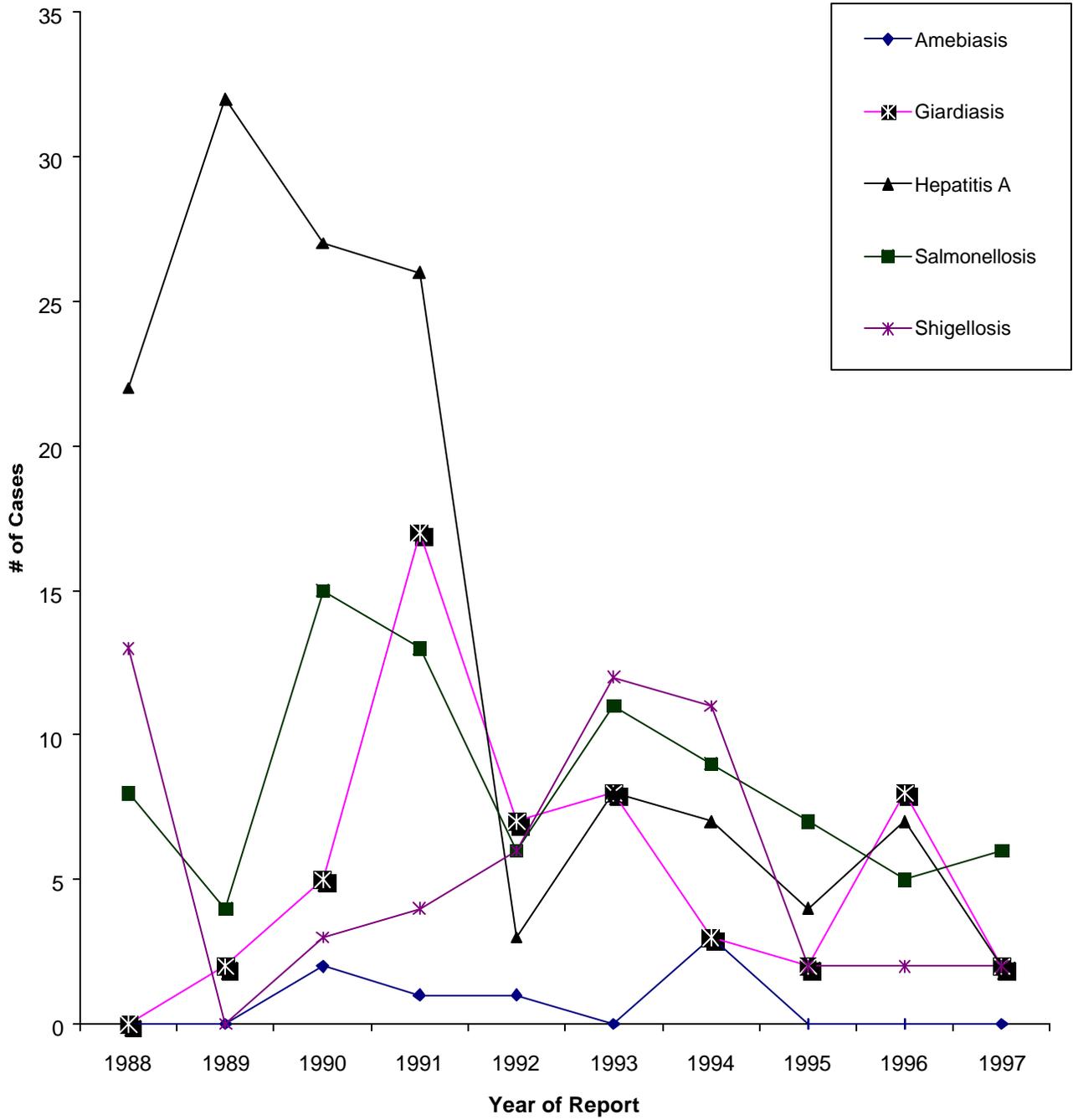


Figure 11. Enteric Diseases, USMC, 1988-1997



## SECTION 7

## SEXUALLY TRANSMITTED DISEASES (STDs)

Table 16. STD Reports, USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
<b>Chancroid</b>	2	0	0	1	4	32	2	4	1	4	<b>50</b>
<b>Chlamydia*</b>	-	-	-	-	-	-	-	-	-	231	<b>231</b>
<b>Gonorrhea*</b>	-	-	-	-	-	-	-	-	-	100	<b>100</b>
<b>Hepatitis B</b>	113	117	75	67	57	37	39	25	16	11	<b>557</b>
<b>Lymphogranuloma venereum</b>	0	1	46	30	9	14	9	4	5	3	<b>121</b>
<b>Syphilis</b>	152	17	153	142	109	108	84	64	37	30	<b>896</b>

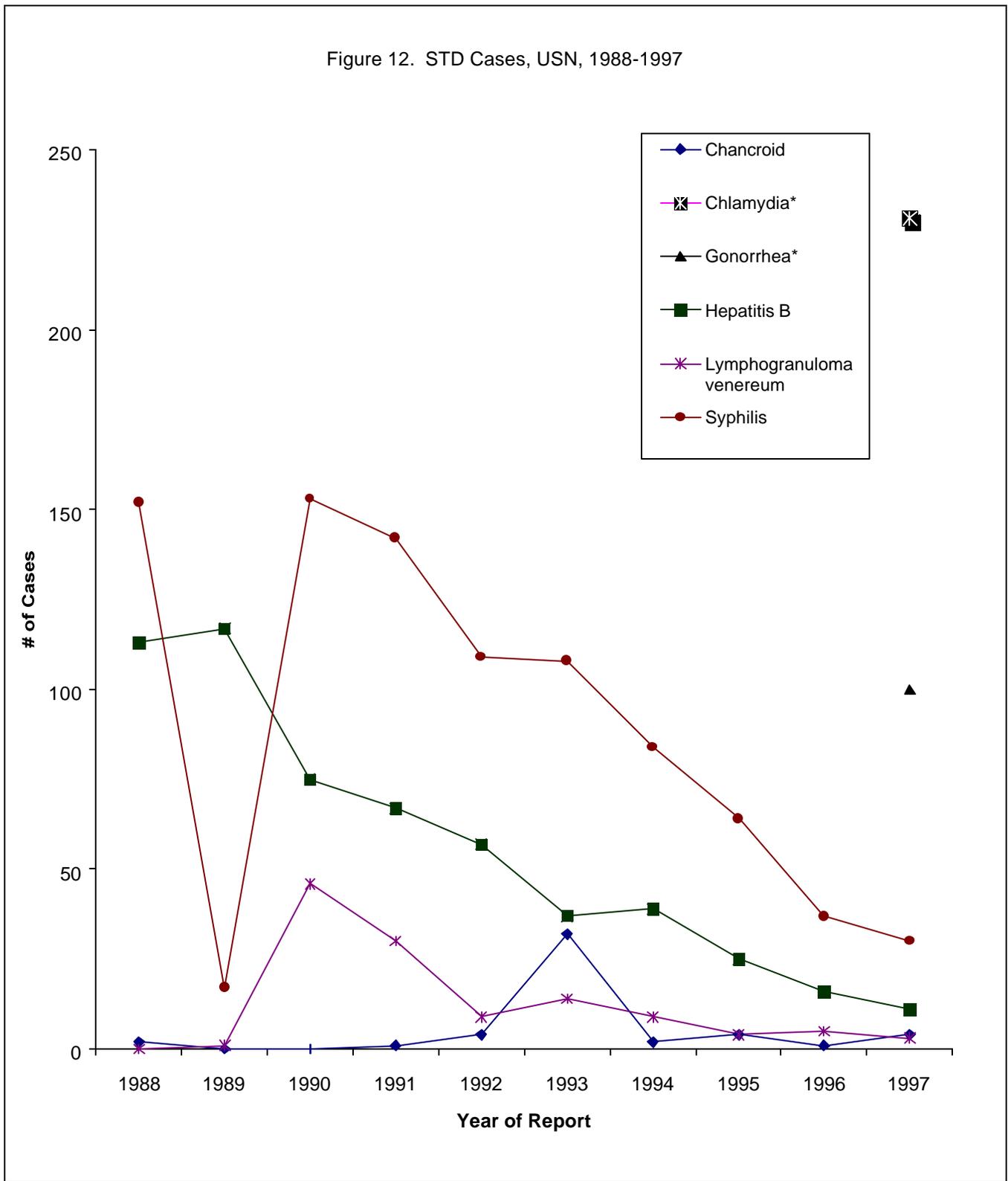
\*Reporting requirement began October 1997

Table 17. STD Reports, USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
<b>Chancroid</b>	0	0	1	1	0	1	0	0	0	2	<b>5</b>
<b>Chlamydia*</b>	-	-	-	-	-	-	-	-	-	222	<b>222</b>
<b>Gonorrhea*</b>	-	-	-	-	-	-	-	-	-	60	<b>60</b>
<b>Hepatitis B</b>	33	35	25	20	23	15	7	6	9	4	<b>177</b>
<b>Lymphogranuloma venereum</b>	0	0	1	1	2	3	6	3	4	24	<b>44</b>
<b>Syphilis</b>	38	7	43	33	65	24	18	8	9	9	<b>254</b>

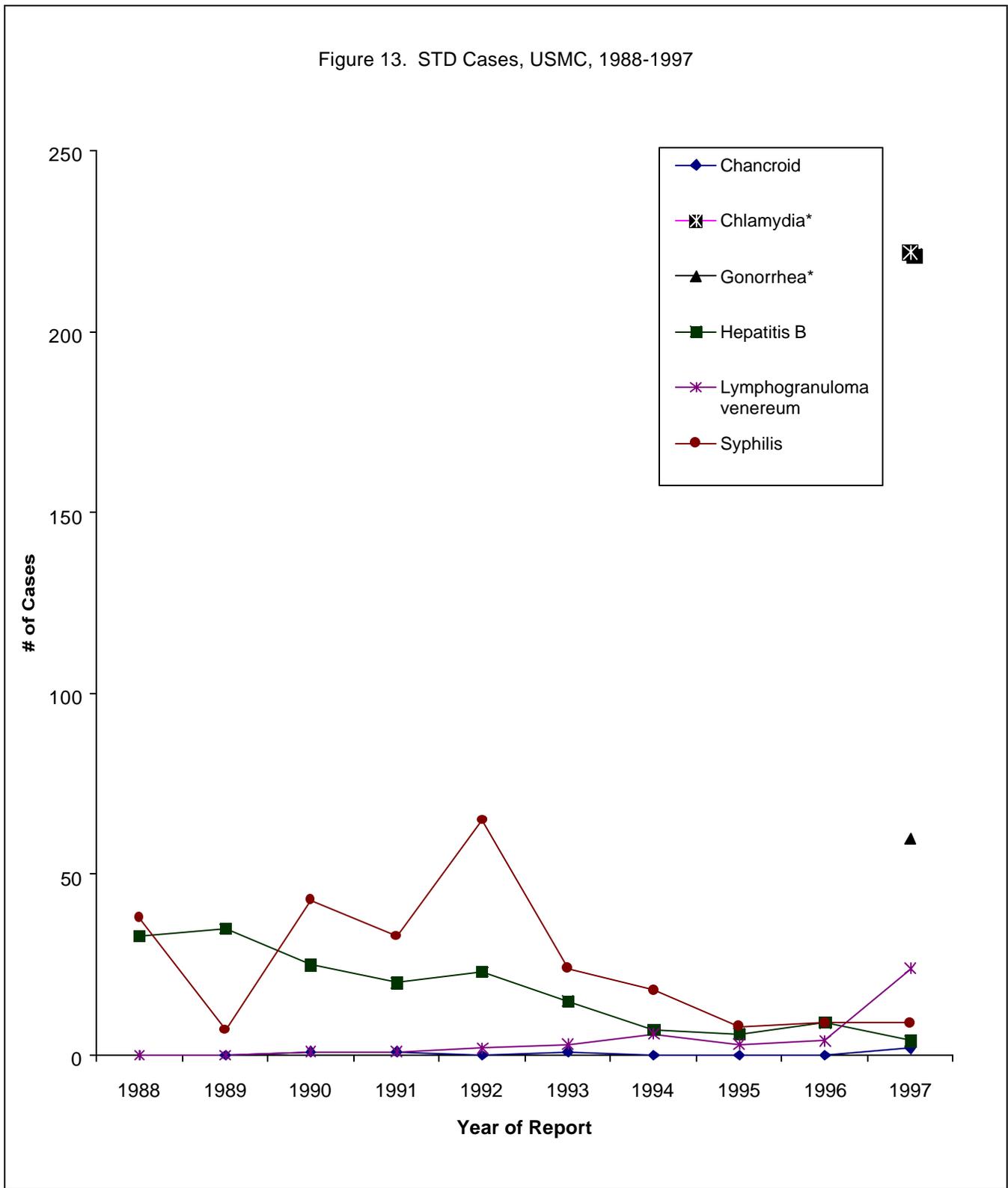
\*Reporting requirement began October 1997

Figure 12. STD Cases, USN, 1988-1997



\*Reporting requirement began October 1997

Figure 13. STD Cases, USMC, 1988-1997



\*Reporting requirement began October 1997

## SECTION 8

## VACCINE PREVENTABLE DISEASES

Table 18. Vaccine Preventable Diseases, USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Hepatitis A	92	117	67	84	44	27	37	26	31	19	544
Hepatitis B	113	117	75	67	57	37	39	25	16	11	557
Measles	1	0	8	3	2	1	1	0	0	0	16
Mumps	1	1	50	11	23	13	5	5	1	5	115
Pertussis	0	0	0	0	0	0	0	0	2	0	2
Rubella	0	0	0	0	1	0	0	0	0	0	1
Typhoid Fever	1	0	3	3	1	0	0	0	0	0	8
Varicella	117	1181	919	767	402	473	234	292	38	10	4433

Table 19. Vaccine Preventable Diseases, USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Hepatitis A	22	32	27	26	3	8	7	4	7	2	138
Hepatitis B	33	35	25	20	23	15	7	6	9	4	177
Mumps	0	0	6	0	22	4	6	0	2	0	40
Pertussis	0	0	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	0	0	0	0	0
Typhoid Fever	1	0	0	0	0	0	0	0	0	0	1
Varicella	2	169	317	274	191	60	52	67	11	2	1145

Figure 14. Vaccine Preventable Diseases, USN, 1988-1997

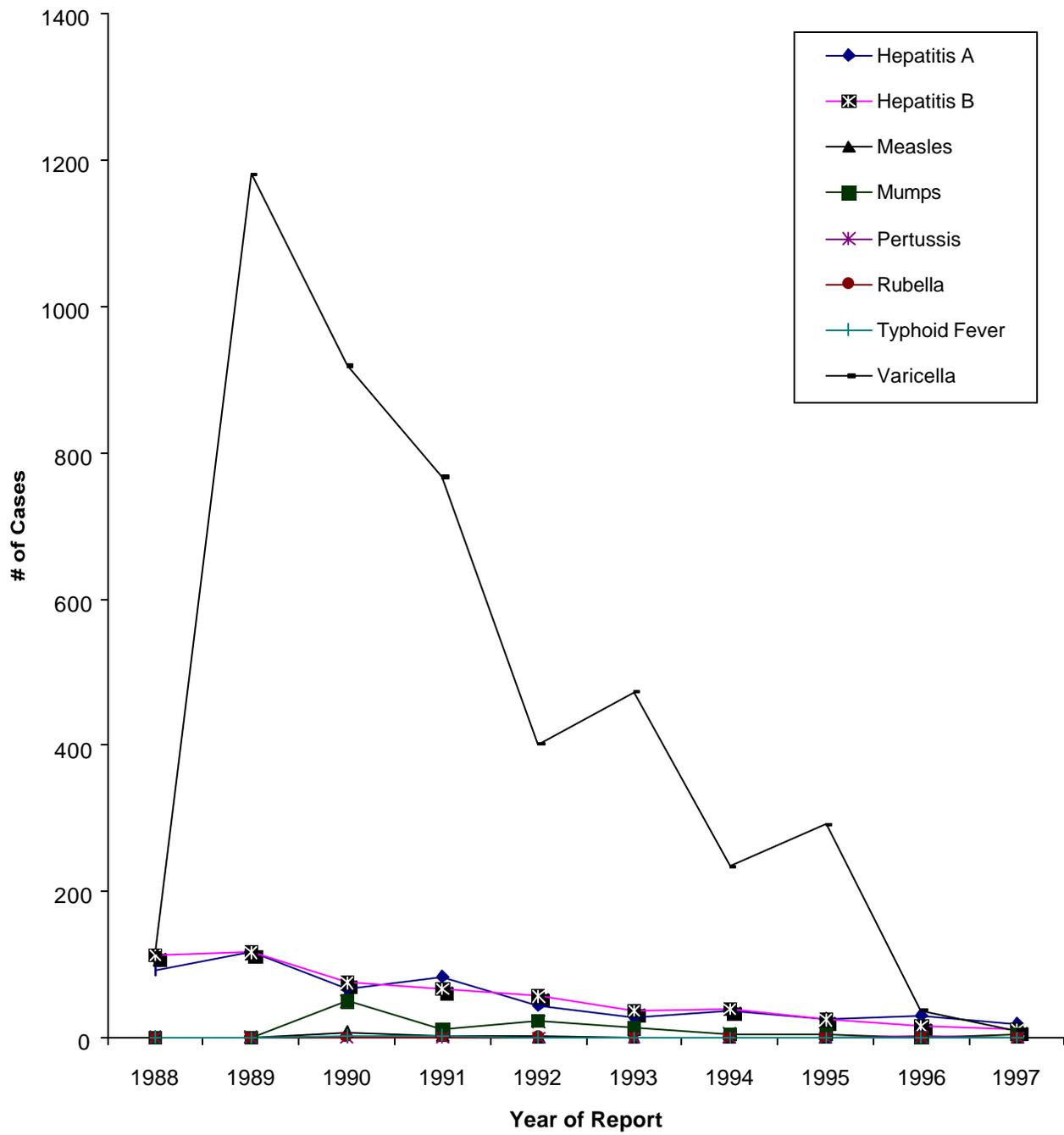
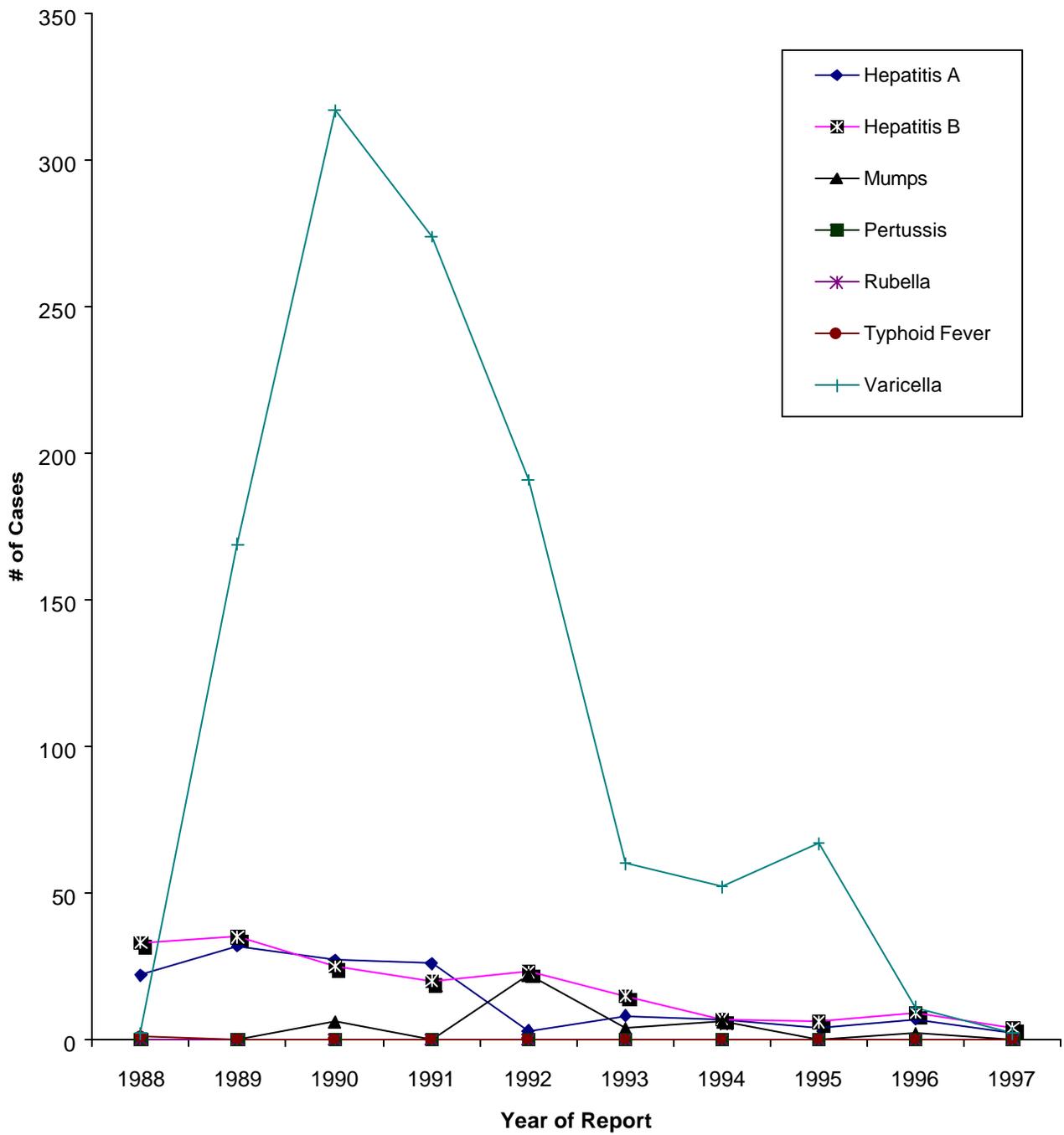


Figure 15. Vaccine Preventable Diseases, USMC, 1988-1997



## SECTION 9

### VECTOR-BORNE DISEASES

Table 20. Vector-borne Diseases, USN, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Dengue Fever	2	52	5	13	20	1	1	7	1	1	103
Encephalitis	0	1	0	0	1	0	0	1	3	4	10
Leishmaniasis	0	0	0	1	1	0	0	1	0	2	5
Lyme Disease	2	0	19	5	3	5	2	7	19	9	71
Malaria	8	7	15	5	10	3	6	3	5	6	68
RMSF	0	1	1	2	0	0	0	2	0	0	6
Trypanosomiasis	0	0	0	0	0	0	0	0	0	0	0
Typhoid Fever	1	0	3	3	1	0	0	0	0	0	8

Table 21. Vector-borne Diseases, USMC, 1988-1997

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Dengue Fever	0	0	0	1	0	0	0	4	0	0	5
Encephalitis	0	0	0	2	2	0	0	0	0	1	5
Leishmaniasis	0	0	0	1	1	0	0	1	0	0	3
Lyme Disease	0	0	14	27	11	55	4	13	21	7	152
Malaria	45	28	49	12	5	56	9	3	2	24	233
RMSF	0	0	6	7	6	3	0	0	1	7	30
Trypanosomiasis	0	0	0	0	0	0	1	0	0	0	1
Typhoid Fever	0	0	0	0	0	0	0	0	0	0	0

Figure 16. Vector-borne Diseases, USN, 1988-1997

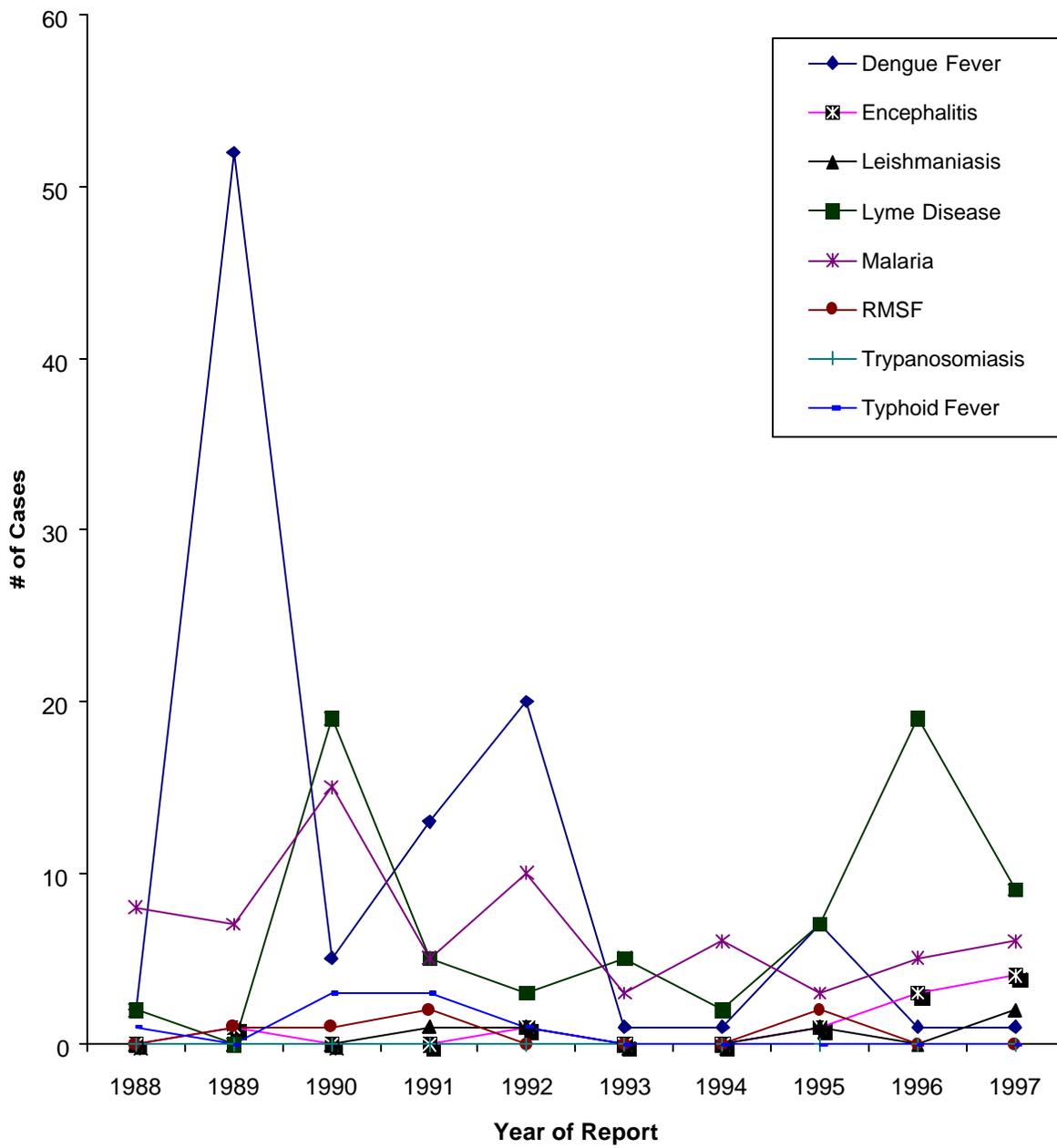
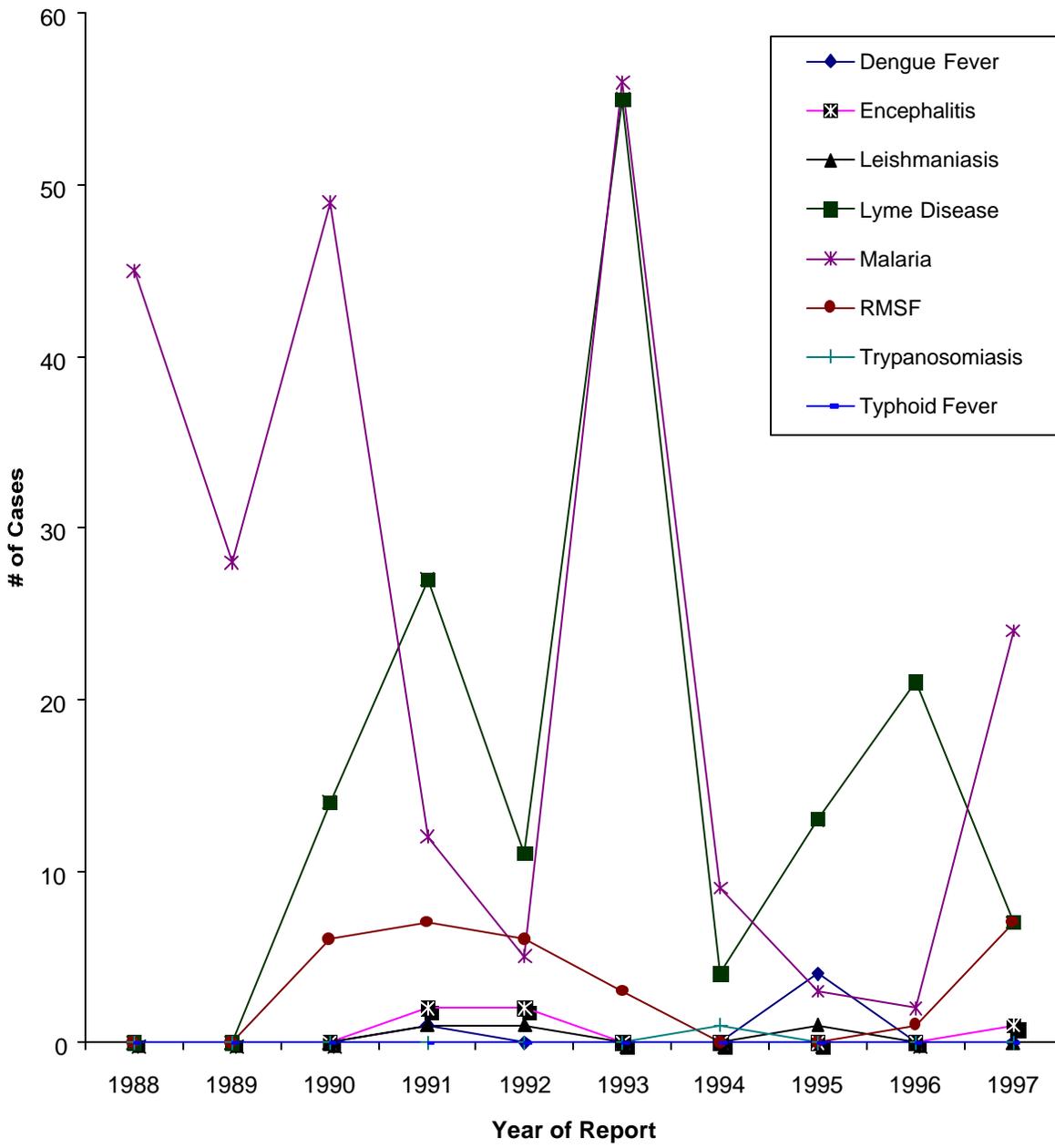


Figure 17. Vector-borne Diseases, USMC, 1988-1997



SECTION 10

COMPARISON WITH DEFENSE MEDICAL EPIDEMIOLOGIC DATABASE (DMED)

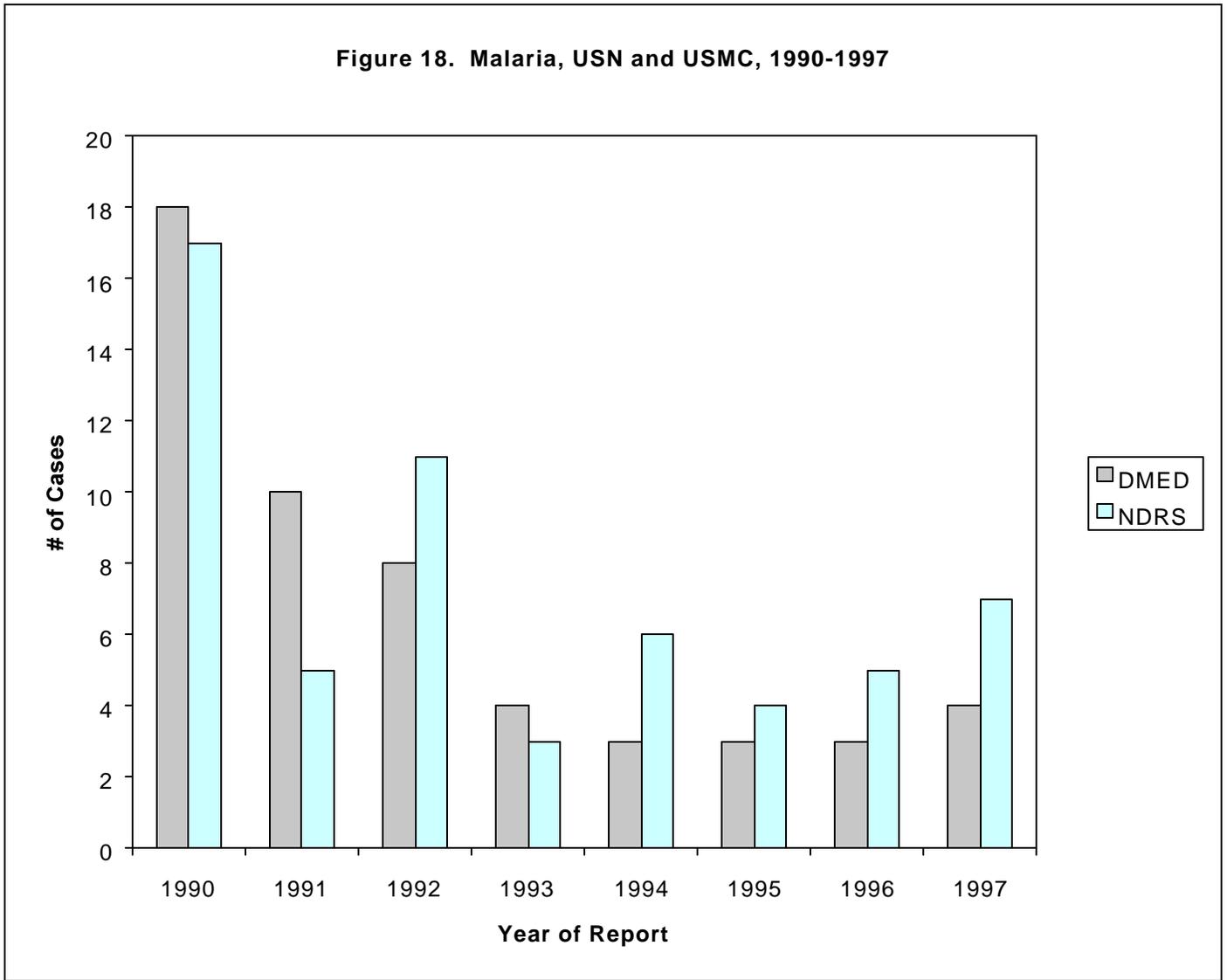


Figure 19. Viral Meningitis, USN and USMC, 1990-1997

