Epidemiologic Report of Communicable Diseases in Monterey County, 2012

Monterey County Health Department
Public Health Bureau

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Citation

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Reporting a Communicable Disease

Timely reporting of certain diseases and conditions is legally mandated by the California Code of Regulations (CCR Title 17). The Monterey County Health Department Communicable Disease Unit places the highest priority on preserving the confidentiality of whom it serves. Public health officials rely on healthcare providers, laboratorians, and other public health personnel to report the occurrence of notifiable diseases to their local health departments. Timely and accurate reporting of disease provides public health data necessary to reduce and prevent morbidity. For example, removing individuals from sensitive occupations such as food handling prevents the spread of diseases such as salmonellosis and hepatitis A. Similarly, the detection and treatment of patients with tuberculosis, the identification and treatment of asymptomatic carriers of typhoid or gonorrhea, and the rapid immunization of people exposed to vaccine-preventable diseases are additional examples of successful public health prevention and intervention made possible by the timely reporting of communicable disease. Failure to report can result in increased disease in the community, increased absences from work or school, increased costs for diagnosis and treatment, increased hospitalization, and increased poor health outcomes. Please visit our website for a complete listing of reportable diseases and conditions, provider reporting procedures, and our Confidential Morbidity Report (CMR) form for providers.

Provider morbidity reporting:

Monterey County Health Department
Communicable Disease Unit
1270 Natividad Road
Salinas, CA 93906
Phone: (831) 755-4521
Fax: (831) 754-6682

Tuberculosis Unit
1270 Natividad Road
Salinas, CA 93906
Phone: (831) 755-4593
Fax: (831) 796-1272

www.mtyhd.org

Key Findings

- In 2012, the Monterey County Health Department's Communicable Disease Unit (CDU) received 19,555 reports of illnesses from medical providers and laboratories. This represented a 46% increase from 2011.
- There were 36 reported outbreaks of communicable diseases in 2012, affecting 1,465 individuals. Viral gastroenteritis, commonly caused by norovirus, with person-to-person transmission was the most commonly identified pathogen.
- Syndemics, or synergistically interacting epidemics, of STIs including HIV/AIDS, TB, and viral hepatitis emerged and require comprehensive approaches for successful prevention and intervention strategies.
- Climate change indicators being monitored by the Communicable Disease Unit included Lyme disease, dengue fever, West Nile virus, hantavirus, Vibrio infections, coccidioidomycosis, and malaria.
- Specific diseases or conditions that showed a statistically significant increase in incidence rates were campylobacteriosis, chlamydia, coccidioidomycosis, E. coli non-O157 (STEC), chronic hepatitis C, pertussis, and early syphilis.
- Diseases that showed a statistically significant decrease in incidence rates during the same timeframe were giardiasis, gonococcal infections, hepatitis A, viral meningitis, and tuberculosis.
- Overall, the rate of all reported morbidity has also increased statistically over the last ten years.
- The most commonly reported enteric illnesses were campylobacteriosis, salmonellosis, and shigellosis. Affected population groups differed between these enteric pathogens, but in general incidence rates were highest among children less than 15 years old.
- Sexually transmitted infections (STIs) represented the largest portion of diseases reported in Monterey County. Individuals age 15 to 24 accounted for the majority of reported chlamydia and gonorrhea cases. African Americans and Others (comprised of individuals of Native American/Alaskan Native, Multiracial, and Other racial groups) were disproportionally affected by chlamydia and gonorrhea. Men who have sex with men (MSM) were disproportionately affected by syphilis.
- In 2012, there were approximately 600 individuals living in Monterey County with Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS). Rates of newly reported cases were highest among African Americans. Among males, MSM represented the most common exposure risk group. Among females, heterosexual exposure was most commonly reported. More Asian/Pacific Islanders, Hispanics, and Others progressed to AIDS within 12 months of HIV diagnosis than Whites. Fewer African American, Hispanic, and Other individuals survived more than 36 months following an AIDS diagnosis than White individuals. Barriers to early testing, diagnosis, and treatment for individuals of color may explain these HIV/AIDS disparities.
- Pertussis remained prevalent among Monterey County residents. Rates were highest among children less than 15 years of age, Hispanics, Asian/Pacific Islanders, and Whites.
- Asian/Pacific Islanders were disproportionately affected by chronic hepatitis B and tuberculosis (TB).
- Sporadic cases of animal rabies were detected among wildlife and domestic animals, posing a risk to both pets and humans.
- Rates of newly reported chronic hepatitis C among non-correctional based community members have increased since 2003. Overall, rates were highest among males age 45 to 64 years old. African Americans were disproportionately affected.
- The incidence of endemic vectorborne diseases such as Lyme disease, plague, tularemia, and West Nile virus remained low. Sporadic cases of internationally-acquired dengue and malaria continued.
- Incidence of coccidioidomycosis increased among Monterey County residents. Rates were highest among residents of South County, individuals ages 25 to 64 years, and African Americans.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Outbreaks

A disease outbreak is a greater-than-expected number of cases that occur within temporal and spatial proximity and with a likely common source association or reasonably identifiable chain of transmission. Health Department response to a suspected outbreak is determined by the magnitude of the outbreak (how many individuals are involved), the communicability of the organism (how easily it is passed from one individual to another), and virulence of the disease (how sick the organism makes people). Outbreaks are managed by a multidisciplinary team working collaboratively. Key individuals include epidemiologists, public health nurses, microbiologists, and environmental health specialists. Viral gastroenteritis (norovirus) with person-to-person transmission is the most commonly reported cause of outbreaks in Monterey County.

Table 6: Number of Reported Outbreaks in Monterey County by Date of Symptom Onset: 2008-2012

Type of Outbreak	**Year of Symptom Onset**				
	2008	**2009**	**2010**	**2011**	**2012**
Foodborne	4	5	0	2	1
Waterborne	0	1	0	0	0
Gastrointestinal (Non-Foodborne)	7	14	12	9	19
Rash Illness	2	2	6	2	11
Respiratory, Viral	6	8	0	1	4
Respiratory, Bacterial	0	0	1	0	1
Other	0	3	1	0	0
Total	**19**	**33**	**20**	**14**	**36**
Number of Individuals Affected	**359**	**1,091**	**301**	**210**	**1,465**

State and National Clusters

Outbreak investigations listed above included only Monterey County residents. However, additional state and national cluster outbreak investigations included Monterey County residents during 2012. These included:

- *Campylobacter jejuni* (source: unpasteurized milk)
- *Salmonella* Braenderup (source: mango)
- *Salmonella* Javiana (suspected source: produce)
- *Salmonella* Montevideo (suspected source: live poultry)
- *Salmonella* Pomona (suspected source: live turtles)
- *Salmonella* Worthington (source: mango and/or papaya)

Timely provider reporting and submittal of specimens by laboratories for specialized testing aids in identifying and controlling outbreaks.

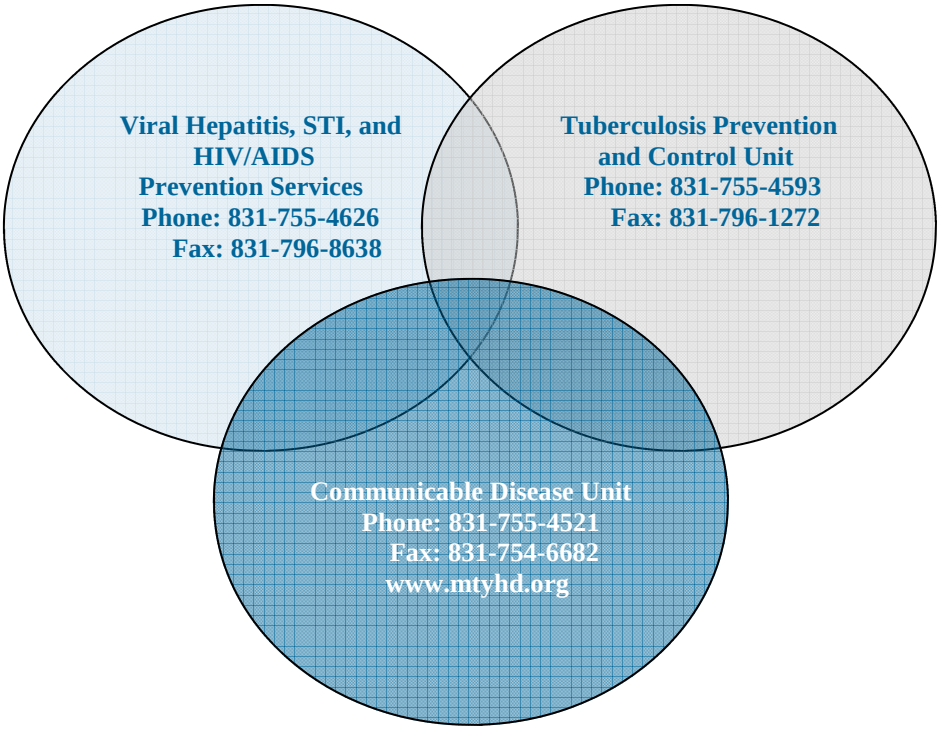
Source: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013.

Syndemics

When developing strategies to reduce morbidity in certain populations, it is essential to recognize that diseases and other health conditions are often tied together. The term "syndemic" refers to synergistically interacting epidemics, also referred to as "intersecting epidemics" or "twin epidemics." In an infectious disease context, it refers to a pathogen-pathogen interaction. For example, two diseases like influenza and bacterial pneumonia act together to create excess morbidity and mortality than would be seen with either alone.

Syndemics of STIs (including HIV/AIDS), TB, and viral hepatitis are emerging worldwide. For example, individuals with HIV/AIDS are more likely to develop active TB because of their immunodeficiency. In fact, HIV infection is the most powerful risk factor for progressing from TB infection to active disease. The main determinants of health outcomes related to viral hepatitis, STIs, and TB syndemics in any given society create a dynamic interplay between the infectious agents themselves, patterns of risk behavior, and the effectiveness of existing prevention and control interventions. An individual's risk of acquiring these diseases is also dependent upon the risk of other people (partners, household members, community contacts) as well as characteristics of the individual's social and sexual networks, the communities within which these networks reside, and society's characteristics including socioeconomic conditions and cultural norms (also called health determinants).

While public health interventions have reduced the burden of disease among some populations, other groups are at increased risk and require new approaches to disease prevention and control. New strategies should promote and support a more comprehensive approach to prevention by identifying and implementing effective individual, community, and societal level interventions. Recent changes in CDC recommendations facilitate information sharing between HIV/AIDS, STI, viral hepatitis, and TB control programs. As a result, the Health Department is developing integrative approaches to address these syndemics. Contacts for the Health Department's related programs are listed below.



Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013.

Climate Change

The Council of State and Territorial Epidemiologists (CSTE) have developed a set of health-related climate change indicators (English et. al., 2009). Climate change refers to any significant change in measures of climate (such as temperature, precipitation, wind, and other weather patterns) that lasts for decades or longer. The world's climate is showing signs of a shift such as warmer, wetter weather and more frequent extreme weather events. As a result, experts predict that many areas will begin to see changes in incidence and geographic distribution of certain diseases. Health outcomes selected as climate change indicators and monitored by the Monterey County Health Department's Communicable Disease Unit (CDU) include cases of :

Lyme disease (pages 10 and 41)
Dengue fever (pages 8 and 41)
West Nile virus (pages 12, 41, and 42)
Hantavirus (page 9)
Vibrio infections (non-cholera, page 12)
Coccidioidomycosis (Valley Fever; pages 8, 14, 43, 46, and 47)
Malaria (page 10)

Data on these diseases are presented in this report, as referenced by the page numbers above. While it is important to remember that changes in incidence of diseases may occur for many different and complex reasons, these seven diseases serve as sentinels and may provide early warning of shifting disease patterns due to changes in climate.

Although scientific understanding of the effects of climate change is still emerging, there is a pressing need to prepare for potential health risks. The goal of monitoring morbidity trends in these diseases is to adapt to current and anticipated health impacts and ultimately prevent illness. By monitoring these diseases, the Health Department can also identify locations and population groups at greatest risk for health impacts due to climate change.

Reportable Diseases and Conditions

In 2012, the Monterey County Health Department's Communicable Disease Unit (CDU) received 19,555 reports of communicable illnesses from medical providers and laboratories. This represented a 46% increase from 2011. Reports were screened for duplication, adjusted as appropriate, investigated, and assessed according to the Centers for Disease Control and Prevention's (CDC's) standard surveillance case definitions. Of those reports, a total of 3,708 incidents representing over 100 different diseases and conditions met the "confirmed," "probable," and/or "suspect" surveillance case definitions set by the CDC and the Council of State and Territorial Epidemiologists (CSTE).

Table 1 shows the number of reported cases meeting the surveillance case definitions by the year in which the case first became symptomatic. The year in which symptoms first began, in which diagnosis was made by a provider, and in which the case was reported to the local health department may differ due to delays in seeking treatment, testing, diagnosis, reporting, and public health investigation. In order to achieve consistency of reporting, all counts and rates shown in this publication were based on the year of symptom onset when such information was available. Please see the Technical Notes section of this document for more information about dates of onset, diagnosis, and report.

Table 2 shows the annual incidence rate for reportable diseases and conditions with rates greater than 1.0 cases per 100,000 population. In addition, the statistical significance of temporal trends (2003 through 2012) was tested for each reportable disease or condition. Please see the Technical Notes section of this document for more information on the methodology used and its limitations. Specific diseases or conditions that showed a statistical (p value ≤ 0.05) increase in incidence rates from 2003 through 2012 were:

- Campylobacteriosis ($p<0.01$)
- Chlamydia ($p<0.01$)
- Coccidioidomycosis ($p<0.01$)
- *E. coli* non-O157, Shiga Toxin Producing ($p=0.04$)
- Chronic Hepatitis C ($p<0.01$)
- Pertussis ($p=0.02$)
- Early Syphilis ($p<0.01$)

Diseases that showed a statistical decrease in incidence rates during the same timeframe were:

- Giardiasis ($p=0.02$)
- Gonococcal Infections ($p<0.01$)
- Hepatitis A ($p=0.03$)
- Viral Meningitis ($p=0.02$)
- Tuberculosis ($p=0.01$)

The remaining reportable diseases showed no statistical change over the same time period. The overall rate of reported communicable disease increased statistically over the last ten years ($p<0.01$).

Timely reporting by physicians to the Health Officer provides health information necessary to reduce morbidity due to communicable disease. Race and ethnicity information that is collected is used to guide culturally-appropriate prevention and intervention programs. In addition, community-based organizations rely on Health Department data to support their grant applications. Furthermore, the Health Department provides community-level information back to local providers so that they are aware of changing morbidity trends among certain populations within their practices, making individual-level interventions more effective. Regrettably, in 2012, approximately half (51%) of the provider-submitted reports were missing race and ethnicity information. Analyzing the burden of disease and associated risk factors is problematic when such a large portion of key information is missing.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Reportable Diseases and Conditions: Cases

Table 1: Number of Communicable Disease Cases among Monterey County Residents by Year of Symptom Onset: 2003-2012

Disease/Condition	Number of Cases									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Acquired Immune Deficiency Syndrome (AIDS)	25	25	24	19	31	23	13	8	21	9
Amebiasis	7	2	6	4	1	2	2	0	2	1
Anaplasmosis/Ehrlichiosis	0	0	0	0	0	0	0	0	1	11
Animal Bites	165	186	218	167	154	134	240	156	234	184
Anthrax	0	0	0	0	0	0	0	0	0	0
Babesiosis	0	0	1	0	0	0	0	0	0	0
Botulism, Adult	0	0	1	0	0	0	0	0	0	0
Botulism, Infant	1	1	2	1	0	0	1	0	0	0
Botulism, Wound	0	0	0	0	0	0	0	0	0	0
Brucellosis	0	1	0	0	1	0	0	0	0	1
Campylobacteriosis	42	47	34	36	48	57	47	63	89	100
Chancroid	0	0	0	0	0	0	0	0	0	0
Chlamydia trachomatis Infections, including Lymphogranuloma Venerium (LGV)	1,229	1,193	1,290	1,380	1,303	1,292	1,354	1,415	1,521	1,759
Cholera	0	0	0	0	0	0	0	0	0	0
Ciguatera Fish Poisoning	0	0	0	0	0	0	0	0	1	0
Coccidioidomycosis	14	20	33	50	41	29	41	60	80	74
Creutzfeldt-Jakob Disease (CJD) and Other Transmissible Spongiform Encephalopathies (TSEs)	NR[1]	NR[1]	NR[1]	NR[1]	0	0	0	1	0	0
Cryptosporidiosis	1	1	2	2	4	2	1	0	6	1
Cyclosporiasis	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	0	0
Cysticercosis or Taeniasis	2	1	3	3	2	0	0	2	0	0
Dengue	0	0	4	0	1	0	0	1	1	1

Reportable Diseases and Conditions: Cases

Table 1 Continued

Disease/Condition	Number of Cases									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Department of Motor Vehicles Related Conditions (Lapses of Consciousness, Alzheimer's Disease, etc.)	224	247	201	219	213	195	177	217	181	222
Diphtheria	0	0	0	0	0	0	0	0	0	0
Domoic Acid Poisoning (Amnesic Shellfish Poisoning)	0	0	0	0	0	0	0	0	0	0
Encephalitis, Bacterial Not Otherwise Specified	0	1	0	0	0	0	0	0	1	1
Encephalitis, Non-Arboviral Viral	4	1	0	0	0	0	0	0	1	2
Encephalitis, Unspecified	1	1	3	2	2	5	5	5	3	1
Encephalitis, Western Equine	0	0	1	0	0	0	0	0	0	0
Escherichia coli O157:H7 Infection	1	2	0	1	4	2	8	2	7	8
Escherichia coli non-O157, Shiga Toxin Producing	0	0	0	0	0	0	1	0	11	7
Foodborne Disease, Single Case Not Otherwise Reportable	1	1	0	13	0	0	0	0	0	0
Giardiasis	25	29	21	36	31	11	9	7	12	14
Gonococcal Infections	201	212	188	204	140	131	93	83	90	201
Haemophilus influenzae, Pediatric Invasive Disease	2	3	0	0	0	1	2	2	2	1
Hantavirus Infection	0	0	0	0	0	0	0	0	0	0
Hemolytic Uremic Syndrome (HUS)	0	0	0	0	0	1	0	0	0	0
Hepatitis A	11	8	7	2	2	4	3	1	2	0
Hepatitis B, Acute	5	2	1	0	0	0	1	0	0	4
Hepatitis B, Chronic	78	75	63	79	71	86	75	82	82	64
Hepatitis B, Perinatal	0	0	0	0	0	0	0	0	0	0

Reportable Diseases and Conditions: Cases

Table 1 Continued

Disease/Condition	Number of Cases									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Hepatitis C, Acute	2	1	0	0	0	1	0	0	1	8
Hepatitis C, Chronic	316	342	458	653	725	1,256	1,077	1,086	1,034	728
Hepatitis D, Acute	0	0	0	0	0	0	2	0	0	0
Hepatitis E	0	0	0	0	0	0	0	0	0	0
Human Immunodeficiency Virus (HIV)	15	9	16	19	23	25	25	20	34	16
Influenza, Severe Novel	NR[1]	NR[1]	NR[1]	NR[1]	0	0	159	2	0	0
Influenza, Severe Seasonal	NR[1]	NR[1]	NR[1]	NR[1]	0	0	0	0	5	1
Legionellosis	0	0	1	2	1	2	1	3	3	2
Leprosy (Hansen Disease)	0	0	0	0	0	0	0	0	0	0
Leptospirosis	0	0	0	0	0	0	0	0	0	0
Listeriosis	1	3	1	1	1	2	2	2	2	2
Lyme Disease	1	1	2	0	0	1	3	1	2	1
Malaria	0	0	2	0	0	1	2	3	3	0
Measles (Rubeola)	0	0	0	1	0	0	0	0	0	0
Meningitis, Bacterial Not Otherwise Specified	8	6	7	4	5	4	3	7	8	8
Meningitis, Fungal	0	1	0	1	1	2	3	2	1	2
Meningitis, Meningococcal	7	0	0	0	1	2	0	0	0	0
Meningitis, Parasitic	0	0	0	0	1	0	0	0	0	0
Meningitis, Unspecified	1	1	1	0	1	2	0	9	0	0
Meningitis, Viral Not Otherwise Specified	48	82	22	13	17	26	40	49	24	12
Meningococcal Infection, Unspecified	0	2	1	0	0	1	0	1	0	0
Mumps	2	0	3	0	3	5	3	1	0	3
Paralytic Shellfish Poisoning	0	0	0	0	0	0	0	0	0	0

Reportable Diseases and Conditions: Cases

Table 1 Continued

Disease/Condition	Number of Cases									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Pelvic Inflammatory Disease (PID)	8	11	23	18	13	8	14	24	15	11
Pertussis (Whooping Cough)	5	50	34	10	22	4	19	133	38	17
Pesticide-Related Illness or Injury	37	22	22	12	41	20	42	22	17	36
Plague, Animal	0	0	1	0	0	0	0	0	0	0
Plague, Human	0	0	0	0	0	0	0	0	0	0
Poliovirus Infection	0	0	0	0	0	0	0	0	0	0
Psittacosis, Human	0	0	0	0	0	0	0	0	0	0
Q Fever	0	1	0	0	1	1	0	1	1	1
Rabies, Animal	6	1	8	11	4	6	6	5	2	7
Rabies, Human	0	0	0	0	0	0	0	0	0	0
Relapsing Fever	0	0	0	0	0	0	0	0	0	0
Rocky Mountain Spotted Fever	0	0	0	0	1	0	0	0	2	8
Rubella (German Measles)	0	0	0	0	0	0	0	0	0	0
Rubella Syndrome, Congenital	0	0	0	0	0	0	0	0	0	0
Salmonellosis, Other than Typhoid Fever	46	40	85	55	60	40	36	52	51	78
Scombroid Fish Poisoning	0	0	0	0	0	0	1	0	1	1
Severe Acute Respiratory Syndrome (SARS)	NR[1]	NR[1]	0	0	0	0	0	0	0	0
Shiga Toxin Detected in Feces	0	0	0	0	0	0	1	1	3	0
Shigellosis	43	24	42	22	27	16	18	19	34	18
Smallpox (Variola)	0	0	0	0	0	0	0	0	0	0

Reportable Diseases and Conditions: Cases

Table 1 Continued

Disease/Condition	Number of Cases									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Spotted Fever Rickettsioses (excluding Rocky Mountain Spotted Fever)	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	2
Staphylococcus aureus, Severe Community-Acquired	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	4	6	6	7	1
Streptococcal Infections in Food Handlers or Dairy Workers	0	0	0	0	0	1	0	0	0	0
Syphilis, Congenital	0	0	0	0	0	0	0	0	0	0
Syphilis, Early (Primary, Secondary, and Early Latent)	6	1	0	1	1	2	1	13	16	22
Syphilis, Late (Latent, Late Latent, Latent Unknown Duration, and Late)	9	4	10	6	2	4	4	4	9	17
Tetanus	0	0	0	0	0	0	0	0	0	0
Toxic Shock Syndrome (TSS)	0	0	1	0	0	0	0	0	0	0
Trichinosis	0	0	0	0	0	0	0	0	0	0
Tuberculosis[2]	54	29	37	29	22	24	16	21	25	18
Tularemia	0	0	0	0	0	0	0	0	0	0
Typhoid Fever, Acute	0	0	0	0	0	0	0	0	0	1
Typhoid Fever, Carrier	0	0	0	0	0	0	0	0	0	0
Typhus Fever	0	0	0	1	0	0	0	0	0	0
Unusual/Other Disease	0	0	0	0	0	3	2	5	1	2
Varicella, Severe	0	0	0	0	1	2	1	1	1	0
Vibrio Infections, Other Than Cholera	2	1	0	0	0	1	0	2	2	4
Viral Hemorrhagic Fevers	NR[1]	NR[1]	0	0	0	0	0	0	0	0
West Nile Virus (WNV) Infections	NR[1]	NR[1]	0	0	0	0	1	0	0	1
Yellow Fever	0	0	0	0	0	0	0	0	0	0

Reportable Diseases and Conditions: Cases

Table 1 Continued

Disease/Condition	Number of Cases									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Yersiniosis	2	0	0	0	0	0	0	1	1	0
All	**2,681**	**2,646**	**2,898**	**3,071**	**3,005**	**3,423**	**3,604**	**3,565**	**3,734**	**3,708**

[1]NR = Disease/condition not reportable under Title 17 of the California Code of Regulations.
[2]Counts shown are by year of case report; information on year of onset and diagnosis were unavailable.

Sources: California Department of Public Health Infant Botulism Treatment and Prevention Program, Monterey County Animal Services, Monterey County Environmental Health Bureau, Monterey County Communicable Disease Unit, and Monterey County Tuberculosis Control Unit. Data are current as of June 6, 2013.

Reportable Diseases and Conditions: Rates

Table 2: Incidence Rates of Selected Communicable Diseases among Monterey County Residents: 2003-2012

Disease/Condition	Rate per 100,000 Population										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Trend
Acquired Immune Deficiency Syndrome (AIDS)	6.1	6.1	5.9	4.7	7.6	5.6	3.1	1.9	5.0	2.1	↔
Amebiasis	1.7	0.5	1.5	1.0	0.2	0.5	0.5	0.0	0.5	0.2	↔
Animal Bites	40.1	45.2	53.4	41.1	37.8	32.6	58.0	37.5	55.7	43.5	↔
Campylobacteriosis	10.2	11.4	8.3	8.9	11.8	13.9	11.4	15.1	21.2	23.6	↑
Chlamydia trachomatis Infections, including Lymphogranuloma Venerium (LGV)	298.3	290.2	316.2	340.0	319.4	314.4	327.4	339.9	362.1	416.0	↑
Coccidioidomycosis	3.4	4.9	8.1	12.3	10.1	7.1	9.9	14.4	19.0	17.5	↑
Cryptosporidiosis	0.2	0.2	0.5	0.5	1.0	0.5	0.2	0.0	1.4	0.2	↔
Department of Motor Vehicles-Related Conditions (Lapses of Consciousness, Alzheimer's Disease, etc.)	60.0	49.1	53.7	52.5	47.8	43.1	53.2	43.5	53.3	55.8	↔
Encephalitis, Unspecified	0.2	0.2	0.7	0.5	0.5	1.2	1.2	1.2	0.7	0.2	↔
Escherichia coli O157:H7 Infection	0.2	0.5	0.0	0.2	1.0	0.5	1.9	0.5	1.7	1.9	↔
Escherichia coli non-O157, Shiga Toxin Producing	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.6	1.7	↑
Foodborne Disease, Single Case Not Otherwise Reportable	0.2	0.2	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	↔
Giardiasis	6.1	7.1	5.1	8.9	7.6	2.7	2.2	1.7	2.9	3.3	↓
Gonococcal Infections	48.8	51.6	46.1	50.3	34.3	31.9	22.5	19.9	21.4	47.5	↓
Hepatitis A	2.7	1.9	1.7	0.5	0.5	1.0	0.7	0.2	0.5	0.0	↓
Hepatitis B, Acute	1.2	0.5	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.9	↔
Hepatitis B, Chronic	18.9	18.2	15.4	19.5	17.4	20.9	18.1	19.7	19.5	15.1	↔
Hepatitis C, Chronic	76.7	83.2	112.3	160.9	177.7	305.7	260.4	260.9	246.2	172.2	↑

Reportable Diseases and Conditions: Rates

Table 2 Continued

Disease/Condition	Rate per 100,000 Population										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Trend
Human Immunodeficiency Virus (HIV)	3.6	2.2	3.9	4.7	5.6	6.1	6.0	4.8	8.1	3.8	⟷
Influenza, Severe Novel	NR[1]	NR[1]	NR[1]	NR[1]	0.0	0.0	38.4	0.5	0.0	0.0	⟷
Influenza, Severe Seasonal	NR[1]	NR[1]	NR[1]	NR[1]	0.0	0.0	0.0	0.0	1.2	0.2	⟷
Meningitis, Bacterial Not Otherwise Specified	1.9	1.5	1.7	1.0	1.2	1.0	0.7	1.7	1.9	1.9	⟷
Meningitis, Meningococcal	1.7	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0	⟷
Meningitis, Unspecified	0.2	0.2	0.2	0.0	0.2	0.5	0.0	2.2	0.0	0.0	⟷
Meningitis, Viral Not Otherwise Specified	11.7	19.9	5.4	3.2	4.2	6.3	9.7	11.8	5.7	2.8	↓
Mumps	0.5	0.0	0.7	0.0	0.7	1.2	0.7	0.2	0.0	0.7	⟷
Pelvic Inflammatory Disease (PID)	1.9	2.7	5.6	4.4	3.2	1.9	3.4	5.8	3.6	2.6	⟷
Pertussis (Whooping Cough)	1.2	12.2	8.3	2.5	5.4	1.0	4.6	32.0	9.0	4.0	↑
Pesticide-Related Illness or Injury	9.0	5.4	5.4	3.0	10.1	4.9	10.2	5.3	4.0	8.5	⟷
Salmonellosis, Other than Typhoid Fever	11.2	9.7	20.8	13.6	14.7	9.7	8.7	12.5	12.1	18.4	⟷
Shigellosis	10.4	5.8	10.3	5.4	6.6	3.9	4.4	4.6	8.1	4.3	⟷
Staphylococcus aureus, Severe Community-Acquired	NR[1]	NR[1]	NR[1]	NR[1]	NR[1]	1.0	1.5	1.4	1.7	0.2	⟷
Syphilis, Early (Primary, Secondary, and Early Latent)	1.5	0.2	0.0	0.2	0.2	0.5	0.2	3.1	3.8	5.2	↑
Syphilis, Late (Latent, Late Latent, Latent Unknown Duration, and Late)	2.2	1.0	2.5	1.5	0.5	1.0	1.0	1.0	2.1	4.0	⟷
Tuberculosis[2]	13.1	7.1	9.1	7.1	5.4	5.8	3.9	5.0	6.0	4.3	↓
Unusual/Other Disease	0.0	0.0	0.0	0.0	0.0	0.7	0.5	1.2	0.2	0.5	⟷
All	650.8	643.6	710.3	756.6	736.7	833.1	871.4	856.4	889.1	876.9	↑

[1]NR = Disease/condition not reportable under Title 17 of the California Code of Regulations.
[2]Counts shown are by year of case report; information on year of onset and diagnosis were unavailable.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Enteric Illnesses

Enteric illnesses enter the body through the mouth and intestinal tract. They are usually spread through contaminated food and water or by contact with emesis or feces. The CDC estimates that each year approximately 1 in 6 Americans (or 48 million people) become ill with a foodborne illness. An estimated 3,000 individuals die of foodborne diseases each year (CDC, 2013).

Public health experts believe that foodborne illness is likely underreported in Monterey County and that the actual rates of enteric illnesses are much higher. This may be due to the fact that not all patients with enteric infections seek medical attention. In addition, patients seeking medical attention may not be properly diagnosed by their providers. The most commonly reported enteric illnesses in Monterey County include salmonellosis, campylobacteriosis, and shigellosis; confirmed and probable cases are included in the data presented in this section.

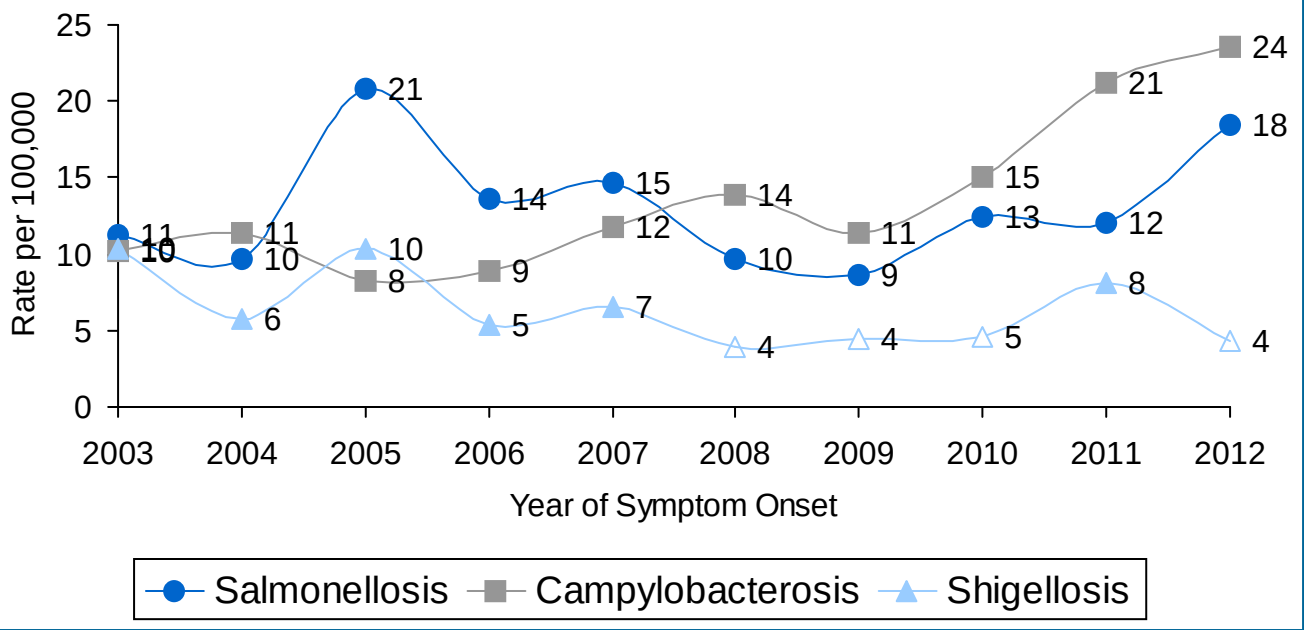


Figure 1: Rate of Selected Enteric Illnesses among Monterey County Residents: 2003-2012
Hollow symbols indicate the rate was based on small numbers and should be considered statistically unstable.

Food safety was selected as one of the CDC's Winnable Battles. Food handling safety risks are common at home. The four easy lessons of Clean, Separate, Cook, and Chill can help prevent foodborne illness. In addition, washing hands thoroughly after using the restroom and before eating can prevent many enteric illnesses. Medical providers can help reduce the transmission of foodborne illnesses by promptly reporting suspected cases to the Health Department. The Environmental Health Bureau is the food safety specialists of the county who, under authority granted by the California Health and Safety Code and the California Code of Regulations, conduct regular inspections in food facilities with the goal reducing the incidence of foodborne illness and ensuring active managerial controls are practiced by food handlers and managers.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Healthy People 2020 Targets:

Salmonellosis: 11.4 cases per 100,000 population

Campylobacteriosis: 8.5 cases per 100,000 population

Shigellosis: None developed

Enteric Illnesses: Salmonellosis, 2010 - 2012

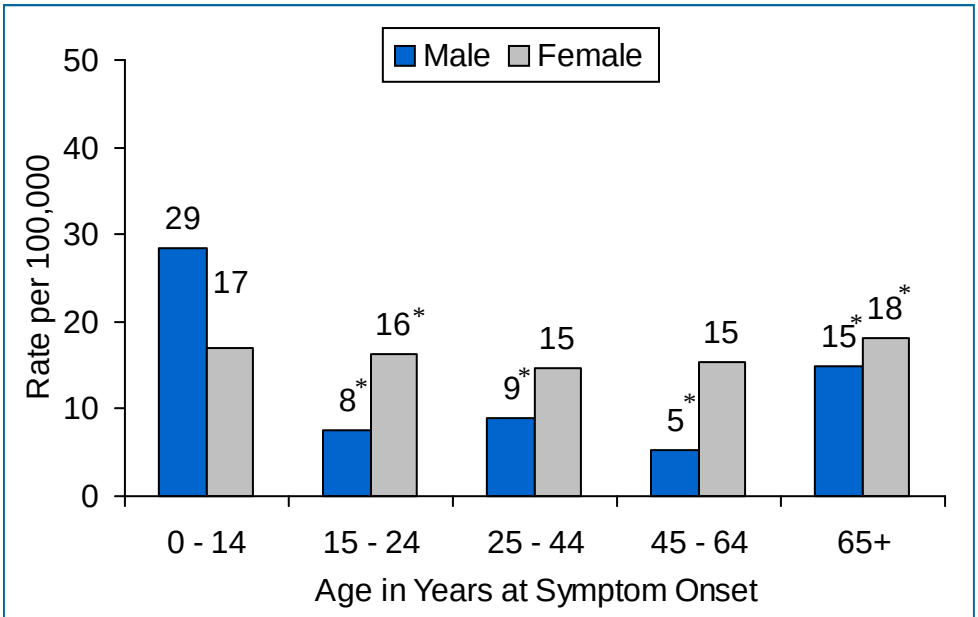


Figure 2: Rate of Salmonellosis among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- There was no significant difference in salmonellosis incidence rates between genders of the same age group.
- Among males, rates were significantly higher among males 0 to 14 years compared to all other male age groups except males 65 and older. No other significant differences between age groups were found.
- Among females, there were no significant differences in rates between age groups, although rates were highest among females 65 and older.

Racial/Ethnic Disparities

- Whites and Hispanics had the highest rates of salmonellosis among Monterey County residents.
- African Americans had the lowest rates of salmonellosis among Monterey County residents.
- There was no significant difference in salmonellosis incidence rates between racial/ethnic groups.

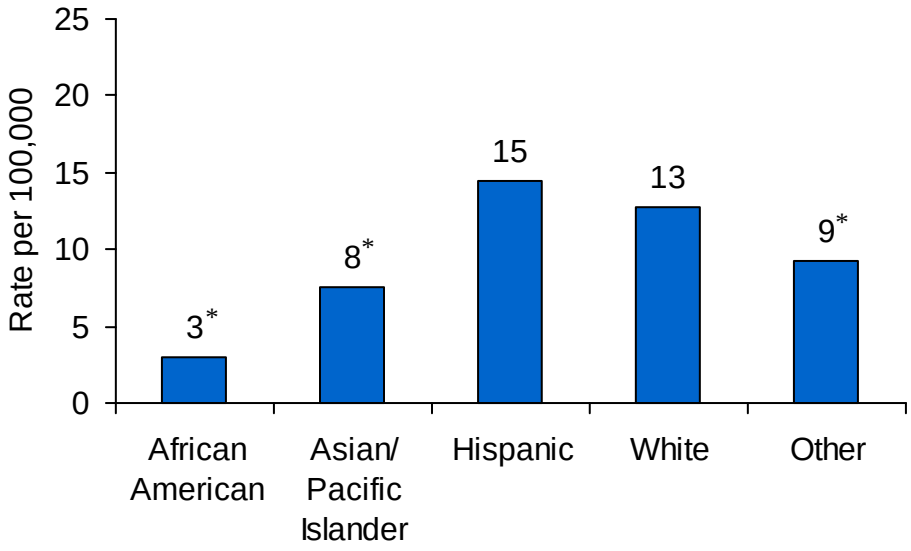


Figure 3: Rate of Salmonellosis among Monterey County Residents by Race/Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Enteric Illnesses: Salmonellosis, 2012

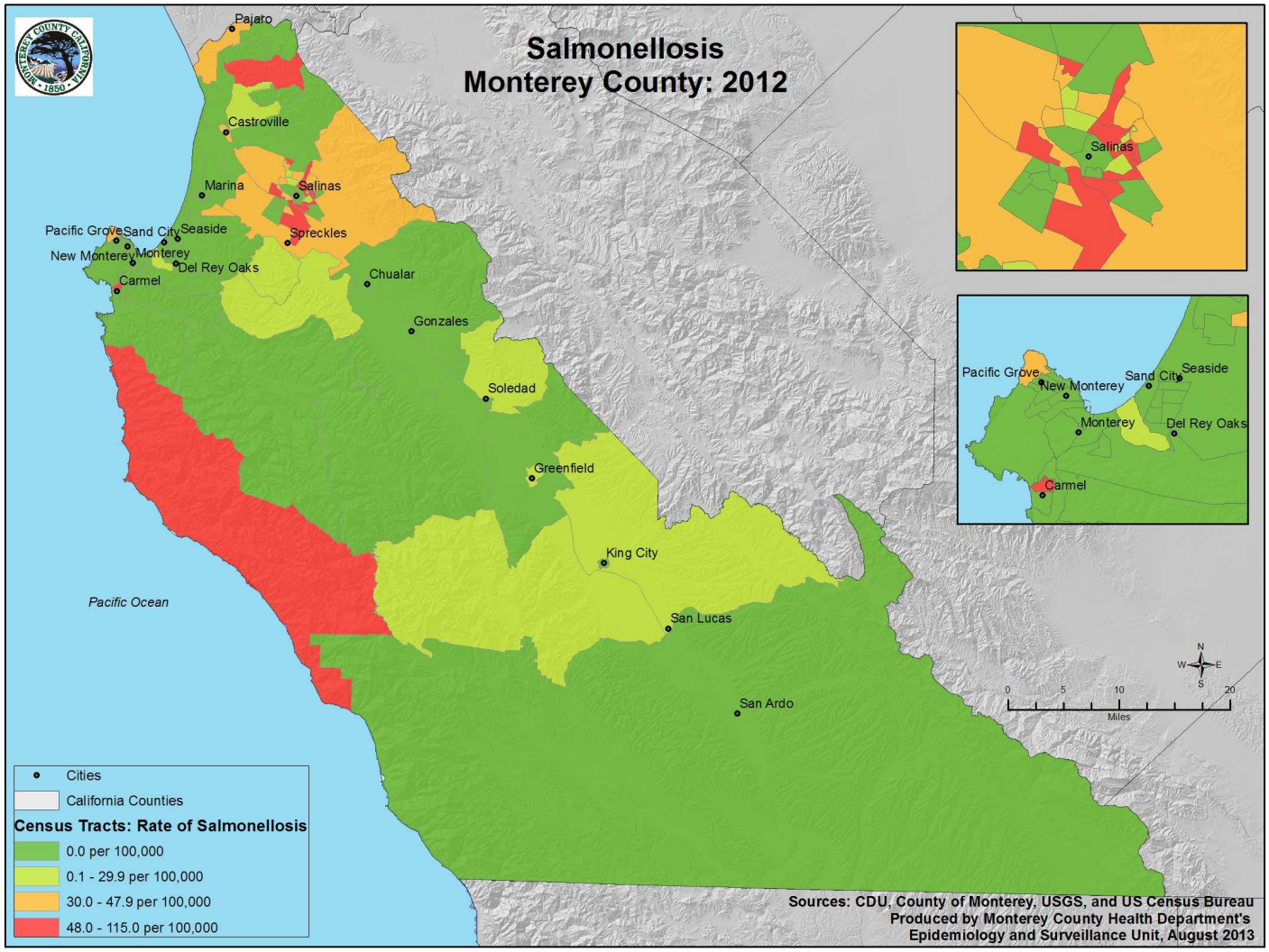


Figure 4: Rate of Salmonellosis among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with incidence rates in the highest quartile included portions of Carmel, Salinas, Watsonville, and Big Sur.
- Census tracts with incidence rates in the lowest quartile included Carmel Valley, Monterey, Seaside, Marina, Gonzales, and San Ardo.
- Spatial trends for salmonellosis were difficult to interpret because the location of exposure was often unknown.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and incidence mapping.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

Enteric Illnesses: Campylobacteriosis, 2010 - 2012

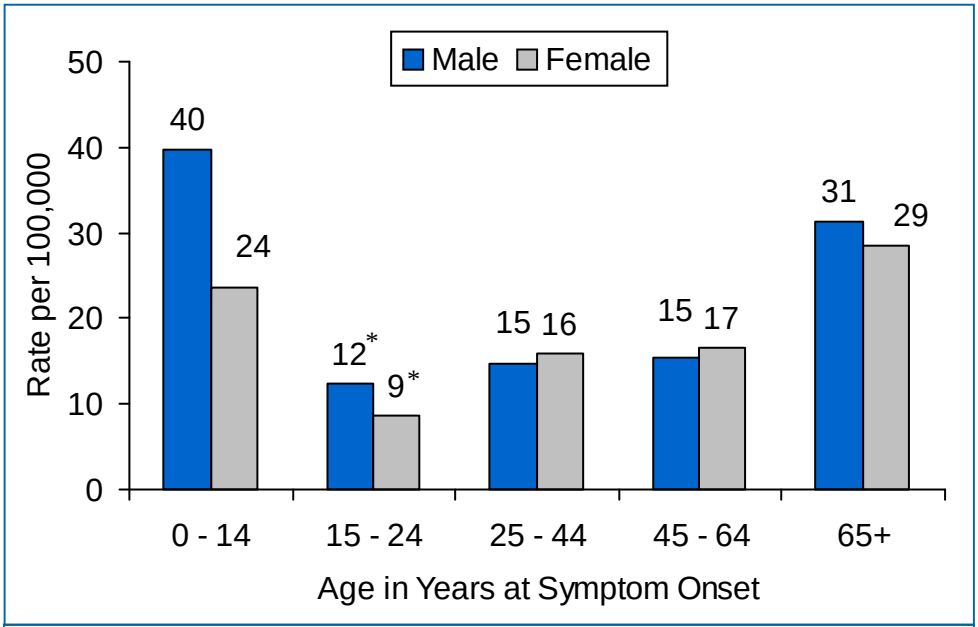


Figure 5: Rate of Campylobacteriosis among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- There were no significant differences in incidence rates of campylobacteriosis between genders of the same age group.
- Rates were significantly higher among males 0 to 14 years compared to all other male age groups except males 65 and older. No other significant differences between male age groups were found.
- Rates among females 65 and older were significantly higher than rates among females ages 15 to 24. No other significant differences between female age groups were found.

Racial/Ethnic Disparities

- As seen with salmonellosis, Hispanics and Whites had the highest rates of campylobacteriosis among Monterey County residents.
- There was no significant difference between racial/ethnic groups.

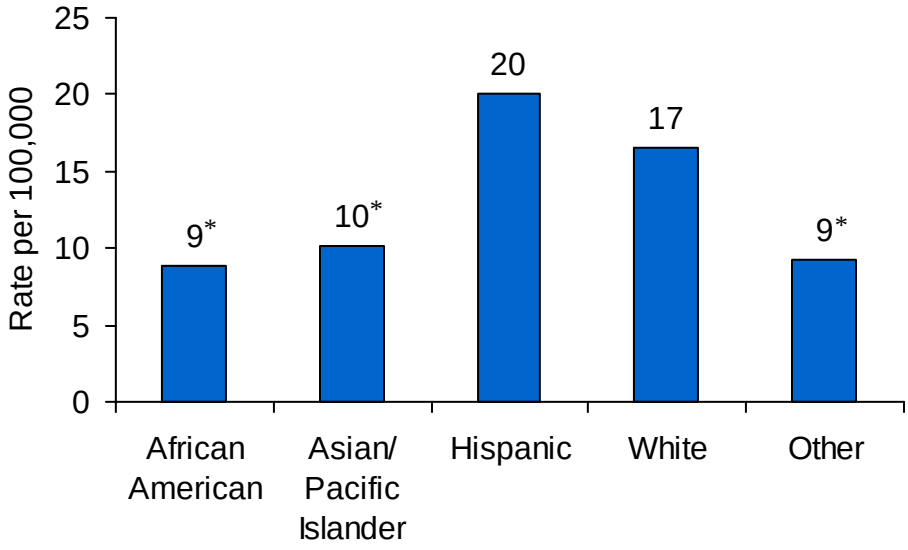


Figure 6: Rate of Campylobacteriosis among Monterey County Residents by Race/ Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Enteric Illnesses: Campylobacteriosis, 2012

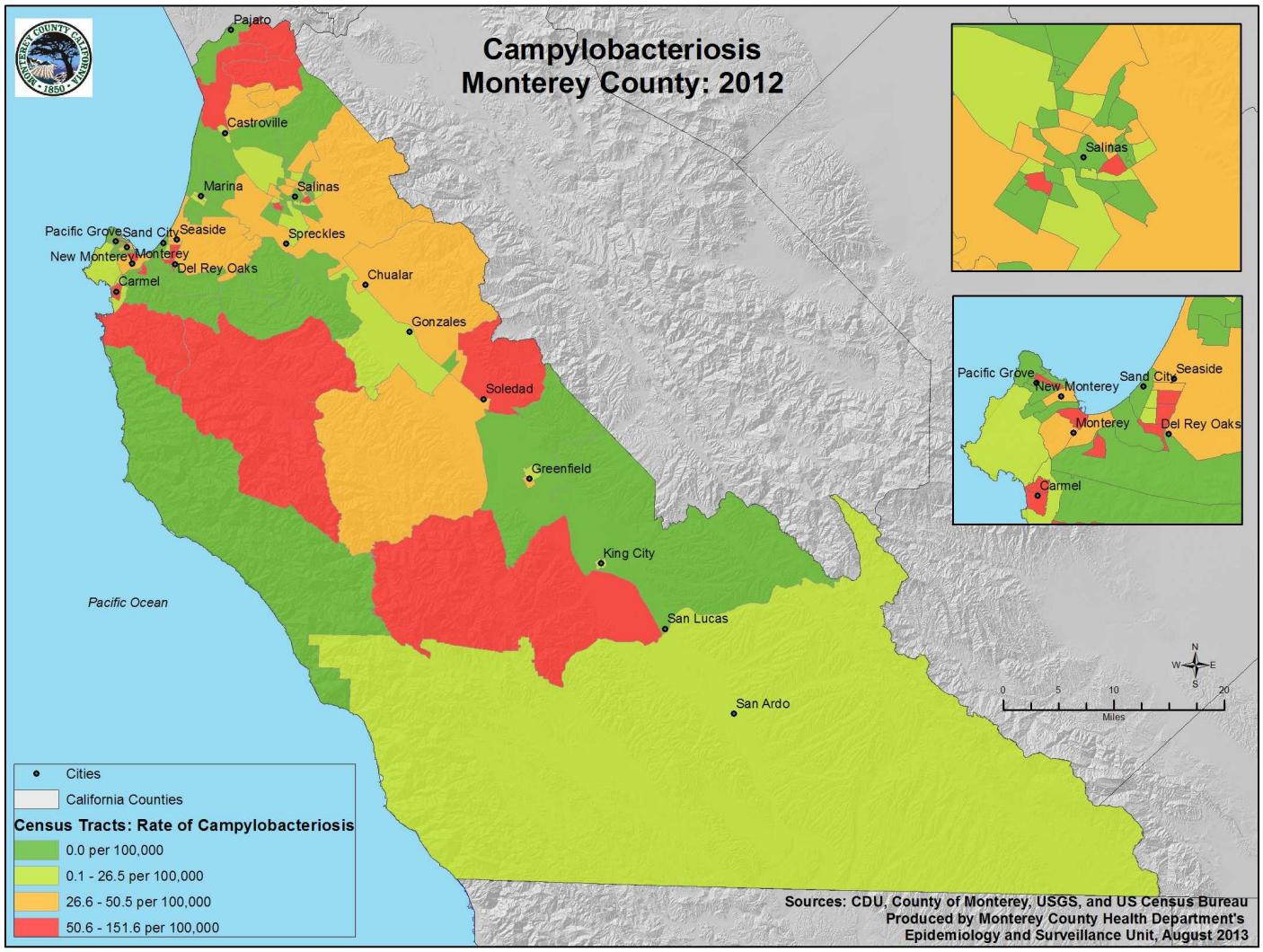


Figure 7: Rate of Campylobacteriosis among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with incidence rates in the highest quartile included portions of Carmel Valley, Carmel, Monterey, Del Rey Oaks, Watsonville, South Salinas, East Salinas, and Soledad as well as the rural Census tract west of King City.
- Census tracts with incidence rates in the lowest quartile included portions of Big Sur and Pacific Grove and the Census tracts surrounding Marina, Greenfield, and King City.
- Spatial trends for campylobacteriosis were difficult to interpret because the location of exposure was often unknown.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

Enteric Illnesses: Shigellosis, 2010 - 2012

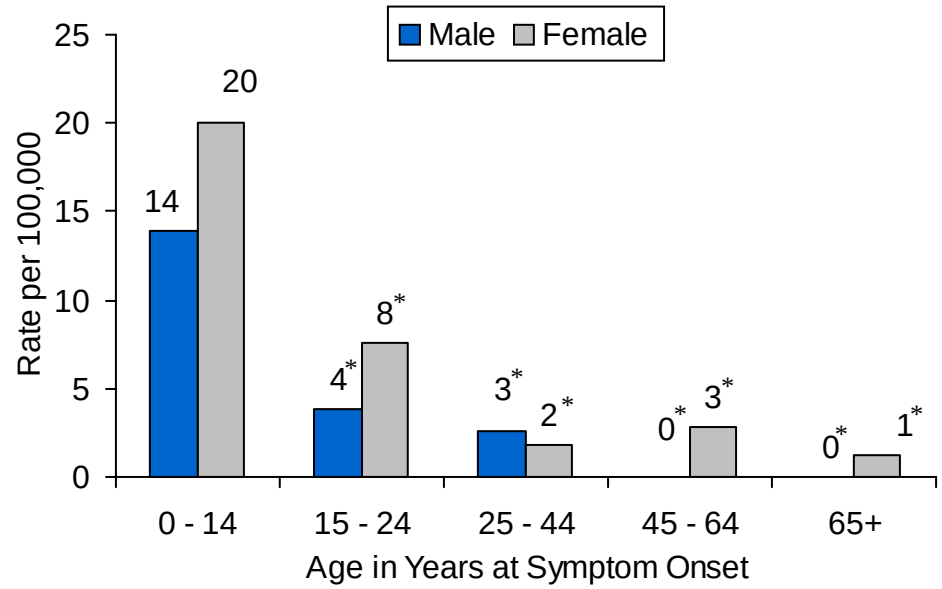


Figure 8: Rate of Shigellosis among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- In general, rates of shigellosis were higher among females than among males of the same age group. Rates for genders of the same age group were not significantly different.
- Males and females aged 0 to 14 years had the highest rates.
- Rates among the 0 to 14 age group were significantly higher compared to all other age groups except those in the 15 to 24 age group, for both genders. No other significant differences between age groups were found.

Racial/Ethnic Disparities

- The Other racial/ethnic group had the highest rate of shigellosis among Monterey County residents, followed by Hispanics.
- There was no significant difference in rates between Others and Hispanics.
- Both Others and Hispanics had significantly higher rates than Whites.
- No other significant differences were found between racial/ethnic groups.

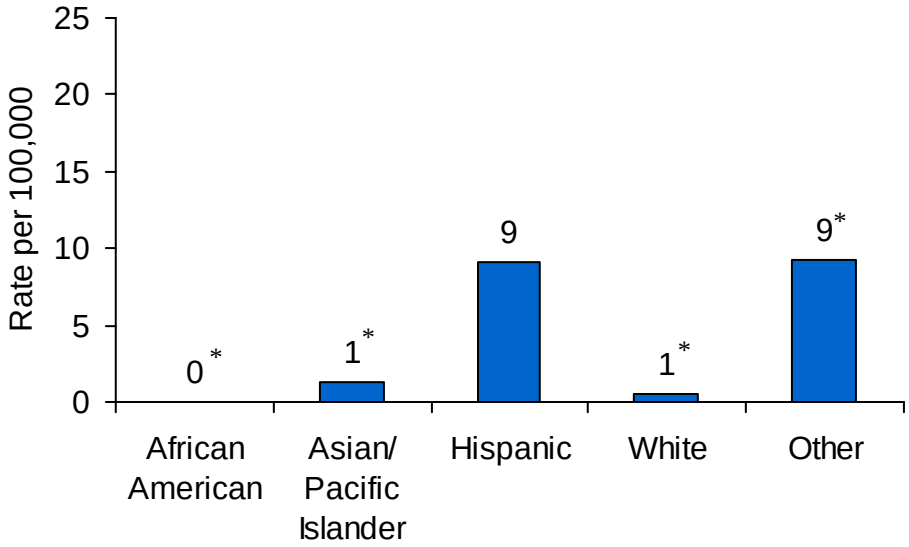


Figure 9: Rate of Shigellosis among Monterey County Residents by Race/Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Enteric Illnesses: Shigellosis, 2012

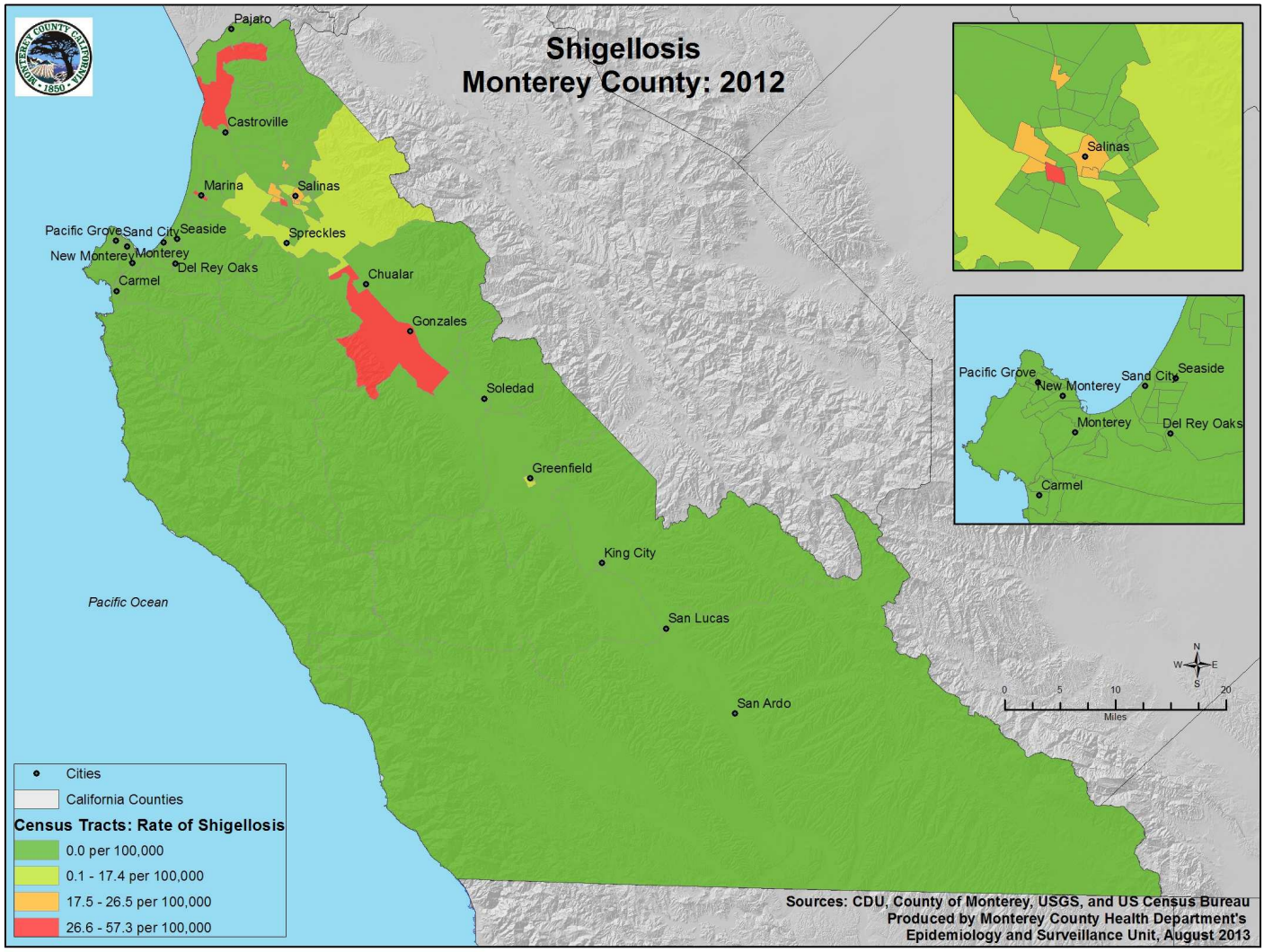


Figure 10: Rate of Shigellosis among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with incidence rates in the highest quartile included portions of Marina, Watsonville, South Salinas, and Gonzales.
- Most Census tracts in Monterey County had low incidence rates.
- Spatial trends for shigellosis were difficult to interpret because the location of exposure was often unknown.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

Sexually Transmitted Infections (STIs)

Sexually transmitted infections (STIs) represented a large portion of the diseases reported in Monterey County. Included in this section are detailed data on chlamydia, gonorrhea, syphilis, and human immunodeficiency virus (HIV). Under-reporting of STIs may be substantial, especially among male cases of chlamydia, because many people with STIs are asymptomatic and do not seek testing or treatment. Confirmed and probable cases are included in the data presented in this section unless otherwise noted.

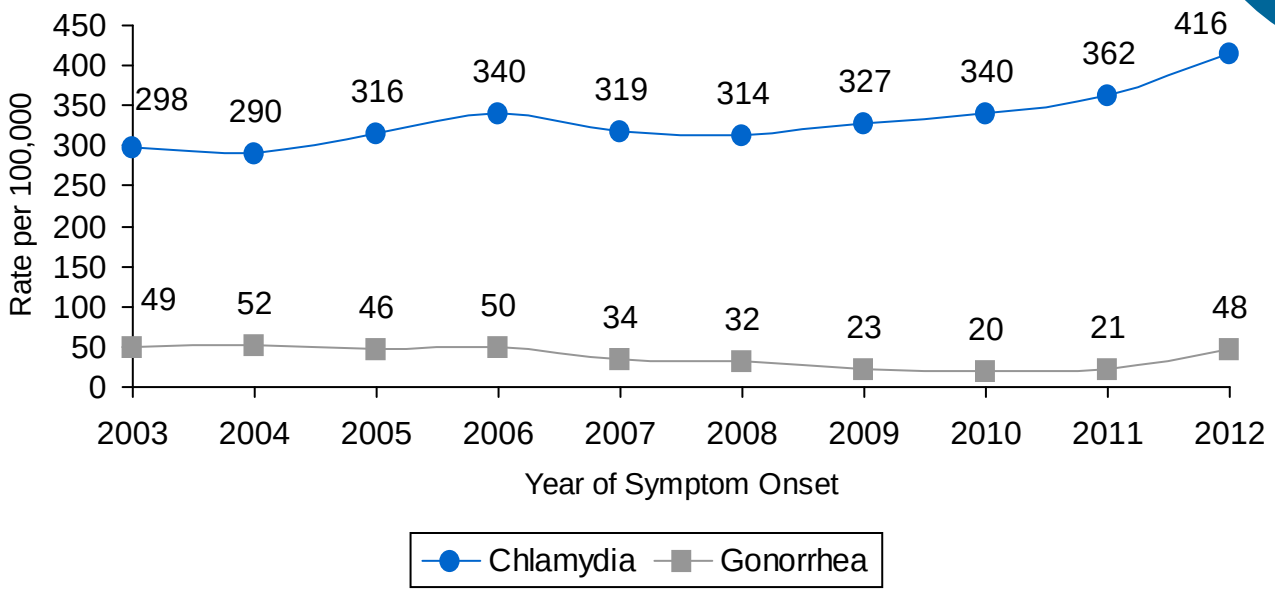


Figure 11: Rate of Selected Sexually Transmitted Infections among Monterey County Residents: 2003-2012

An individual's opportunity to make healthy choices and adopt healthy behaviors depends upon their access to sexual health information, access to prevention services, access to health care services, and access to family and community support. Policy makers can adopt policies that improve the community's access to sexual health education, prevention services, and health care. Health care providers can adopt practice strategies that enhance identification of patients at risk for STI, increase screening and testing for STI, and improve treatment outcomes for patients and their sexual contacts. Parents can openly engage their children in discussions about sexual health and STI prevention. These concerted efforts can increase opportunities for youth and young adults to make healthy choices and adopt healthy behaviors that reduce their risk for STI .

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Healthy People 2020 Targets:

Chlamydia: In development (rate)

Gonorrhea: 251.9 cases per 100,000 females age 15 to 44 years old; 194.8 cases per 100,000 males age 15 to 44 years old

Primary and Secondary Syphilis: 1.3 cases per 100,000 females; 6.7 cases per 100,000 males

AIDS: 12.4 new cases per 100,000 population

AIDS: Increase proportion surviving >36 months after AIDS diagnosis to 92.4%

HIV: In development (incidence rate)

STIs: Chlamydia, 2010 - 2012

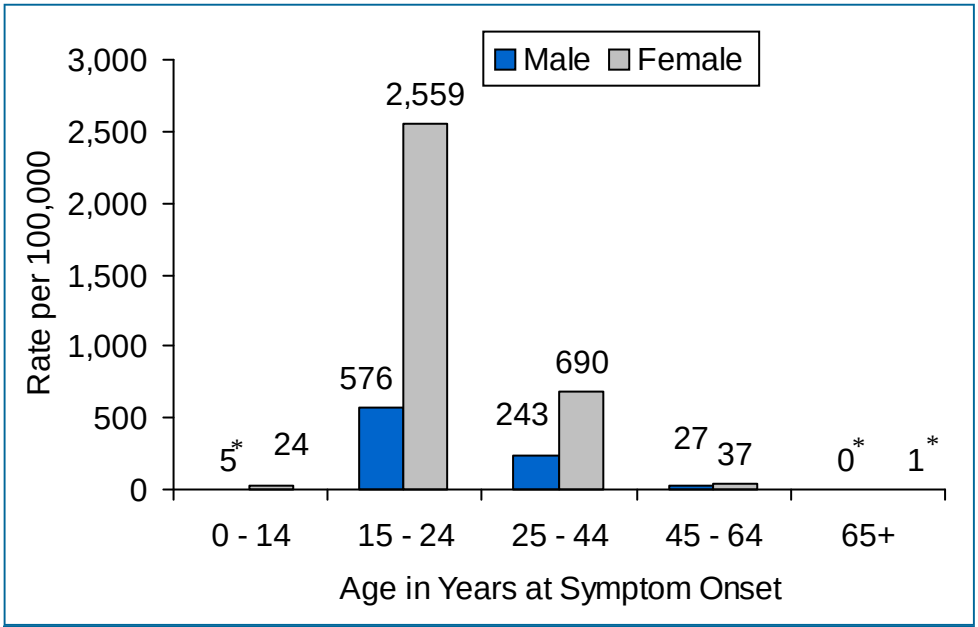


Figure 12: Rate of Chlamydia Infections among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Rates of chlamydial infections were significantly higher among females ages 15 to 24 years old when compared to all other age and gender groups.
- Rates were significantly higher among females than males of the same age for all age groups except those 45 years and older.
- Differences in rates between males and females as well as between certain age groups may be partly attributable to differences in screening practices for males and females, differences in clinical presentation between males and females, and differences in diagnosis and reporting.

Racial/Ethnic Disparities

- Rates of chlamydial infections were significantly higher among African Americans than all racial/ethnic groups except Others.
- Rates among Others were significantly higher than rates among Whites and Asian/ Pacific Islanders.
- Hispanics had the third highest rates of chlamydia. Rates among Hispanics were significantly higher than among Whites and Asian/Pacific Islanders.

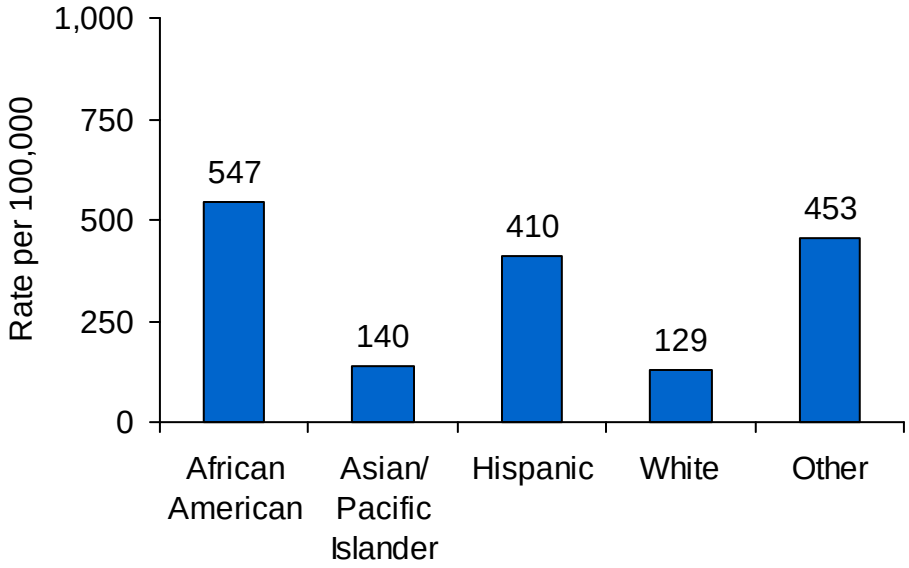


Figure 13: Rate of Chlamydia Infections among Monterey County Residents by Race/ Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

STIs: Chlamydia, 2012

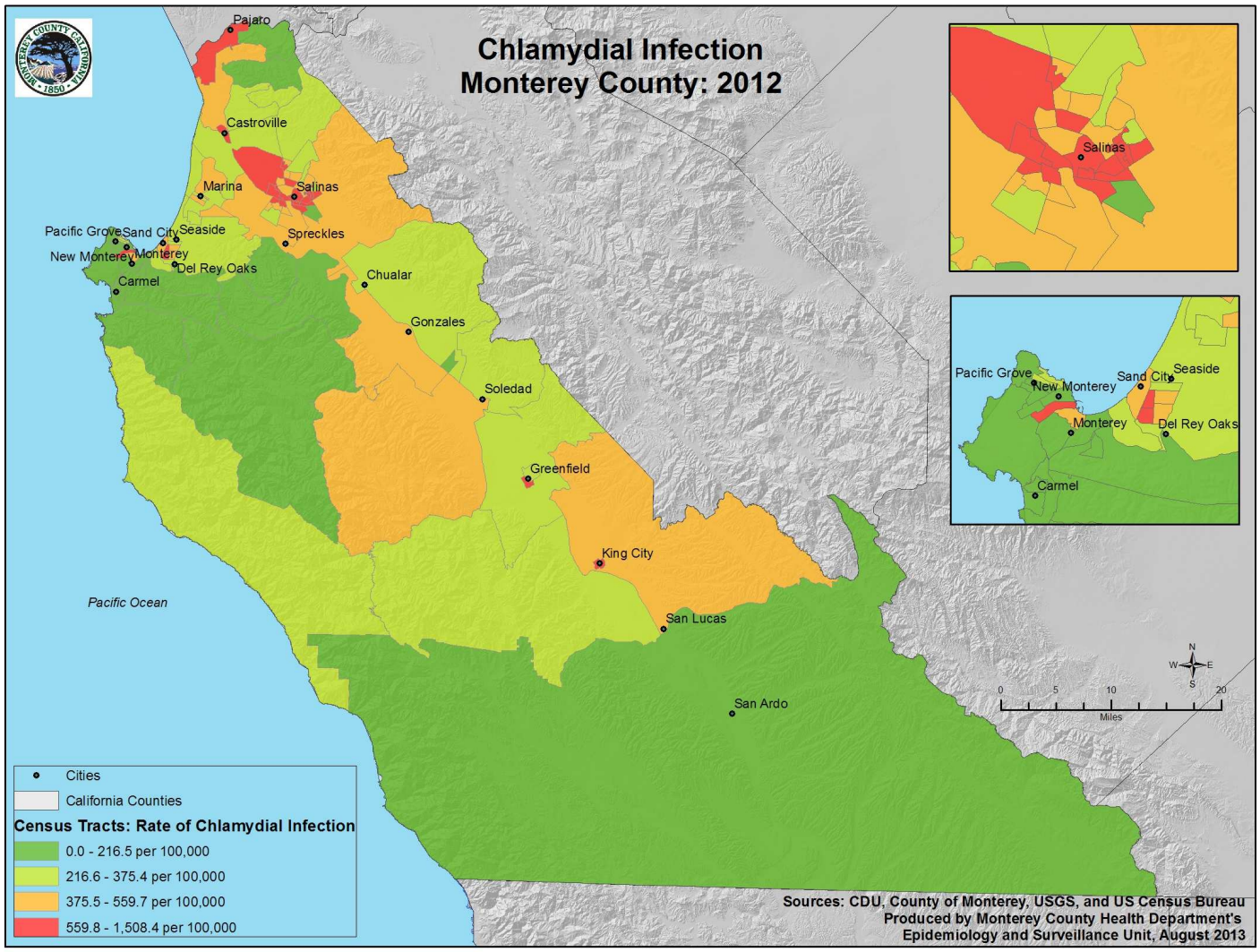


Figure 14: Rate of Chlamydia Infections among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with incidence rates in the highest quartile included portions of Monterey, Seaside, Watsonville, Castroville, Salinas, Greenfield, and King City.
- Census tracts with incidence rates in the lowest quartile included portions of Pebble Beach, Carmel, Aromas, and extreme South County.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

STIs: Gonorrhea, 2010 - 2012

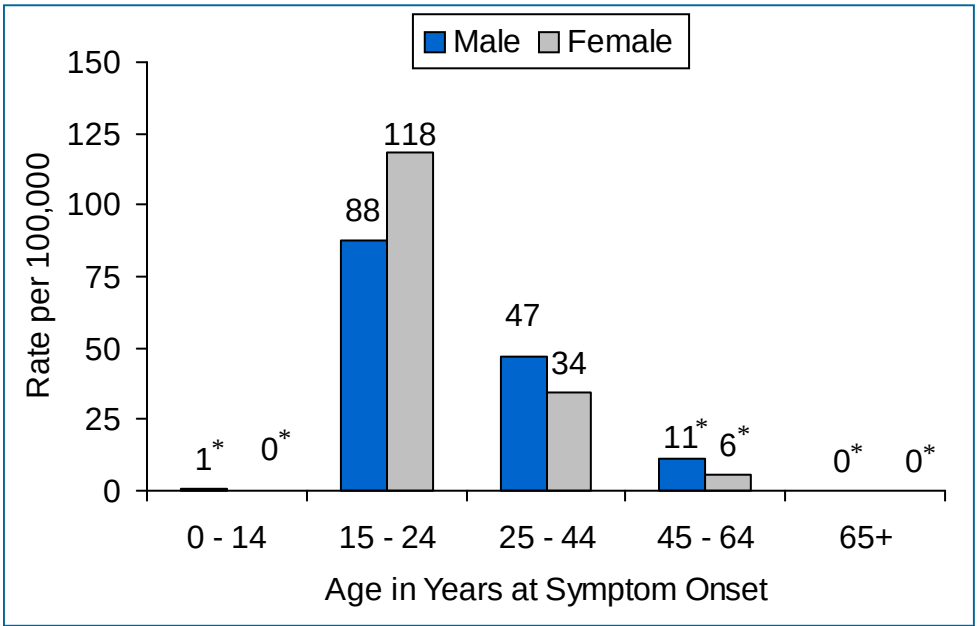


Figure 15: Rate of Gonorrhea among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Females age 15 to 24 years had the highest incidence of gonorrhea.
- There was no significant difference in the incidence rates between genders of the same age group.
- Rates among individuals age 15 to 24 were significantly higher than all other age groups for both genders.

Racial/Ethnic Disparities

- Gonorrhea incidence rates were significantly higher among African Americans than all other racial/ethnic groups.
- As seen with chlamydia, Others had the second highest rates of infection.
- Asian/Pacific Islanders and Whites had the lowest rates of infection.
- Rates among Hispanics were significantly higher than among Whites.

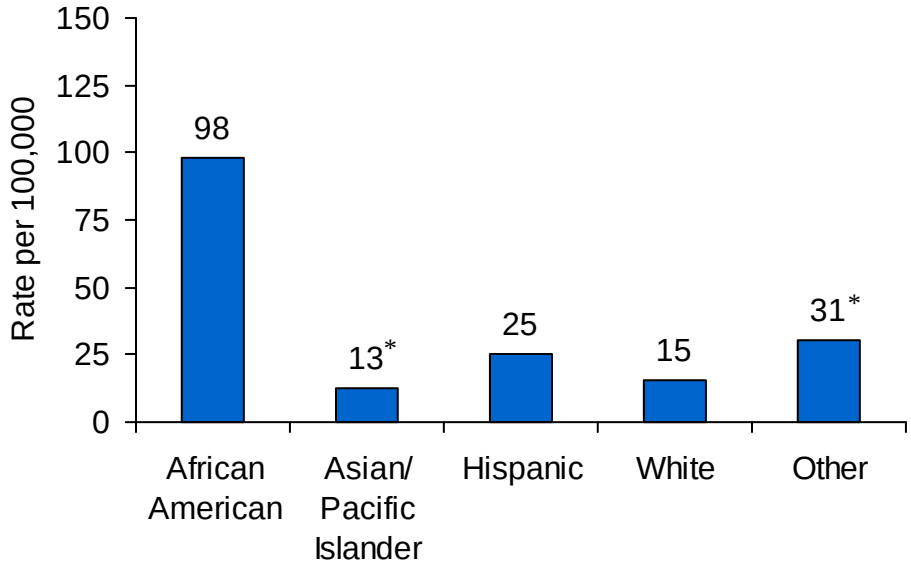


Figure 16: Rate of Gonorrhea among Monterey County Residents by Race/Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

STIs: Gonorrhea, 2012

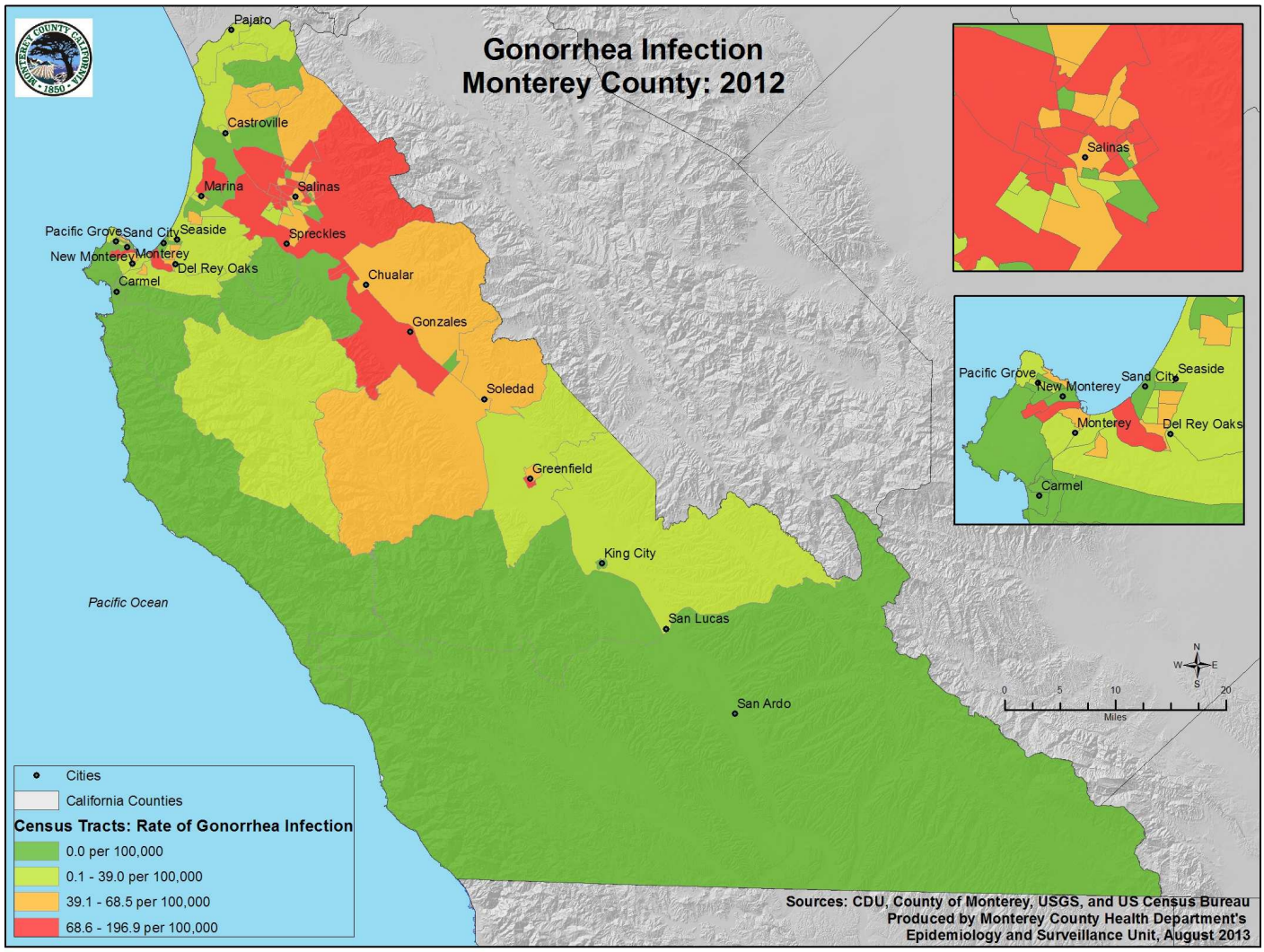


Figure 17: Rate of Gonorrhea among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Rates of gonorrhea incidence were distributed in a slightly different pattern than chlamydia incidence rates when displayed by Census tracts.
- Census tracts with incidence rates in the highest quartile included portions of Monterey, Marina, Salinas, Gonzales, and Greenfield.
- Census tracts with the incidence rates in the lowest quartile included Pebble Beach, Carmel, Big Sur, King City, and extreme South County.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

STIs: Early Syphilis, 2010 - 2012

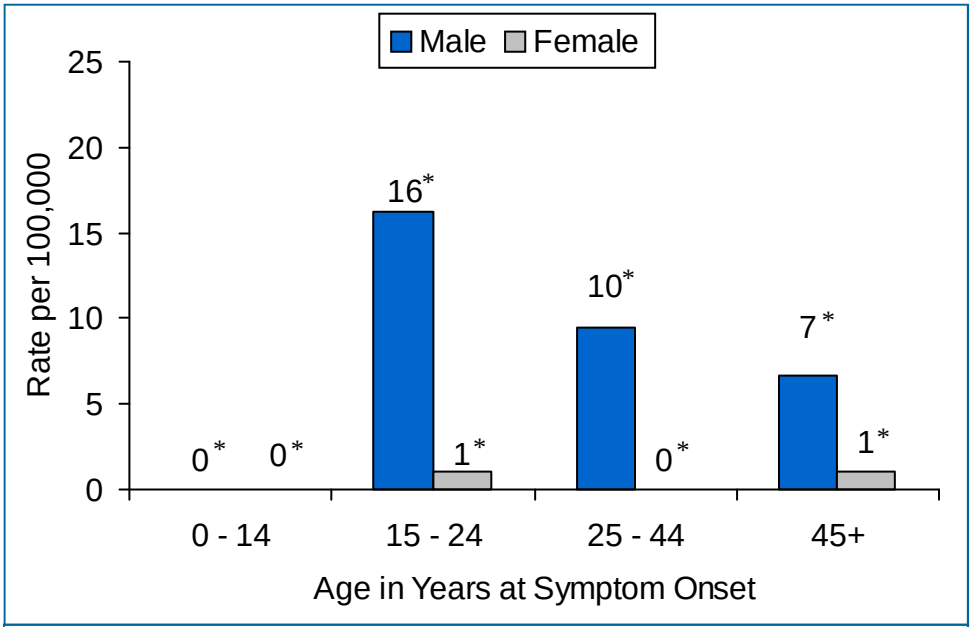


Figure 18: Rate of Early Syphilis among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Rates of early syphilis (primary, secondary, and early latent) were higher among males than females in each age group presented.
- Incidence rates among males age 15 to 24 years old were the highest.
- There were no significant differences between the rates among males in the 15 to 24, 25 to 44, and 45+ years age groups.
- Men who have sex with men (MSM) comprised the majority of individuals diagnosed with early syphilis.

Racial/Ethnic Disparities

- There were no significant differences in early syphilis incidence rates across racial/ethnic groups.
- Prevention and intervention messaging for syphilis should be culturally sensitive.

Geographic Distribution

- Rates were not calculated and compared by Census tracts due to small case numbers.

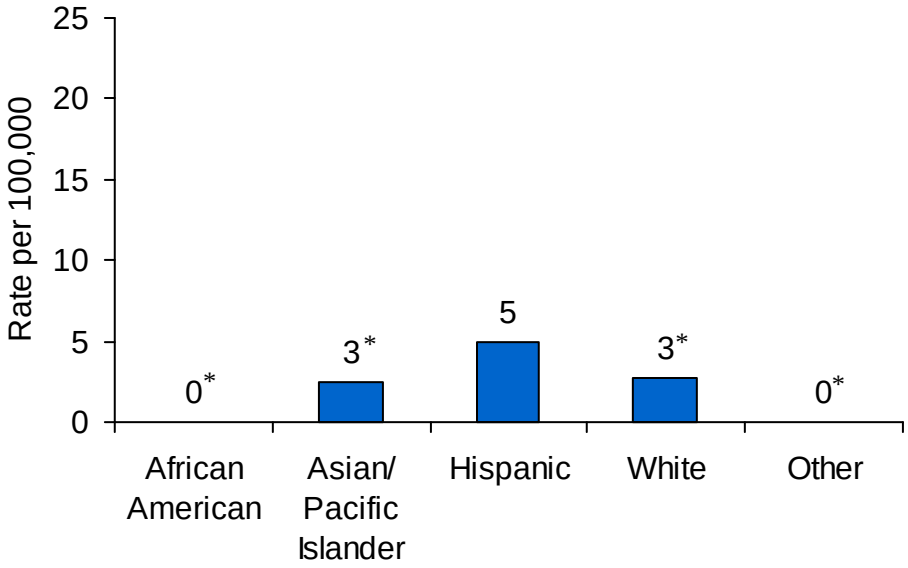


Figure 19: Rate of Early Syphilis among Monterey County Residents by Race/Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

STIs: HIV/AIDS

Reporting regulations for HIV and AIDS have changed over time, making analysis of temporal trends problematic. Mandatory reporting of AIDS in California began in March 1983. The case definition for AIDS changed in 1993. Mandatory HIV reporting using a no-name code began in July 2002, but then was changed to name-based reporting in 2006. Individual cases that were reported using the code-based system only were not included in the data below. In 2008, laboratory reporting requirements were changed to include positive CD4 and viral load tests. Diagnosis and reporting delays may be significant with HIV/AIDS. As a result, counts and rates for years 2008 through 2012 should be considered provisional and an under-representation of the true number of cases.

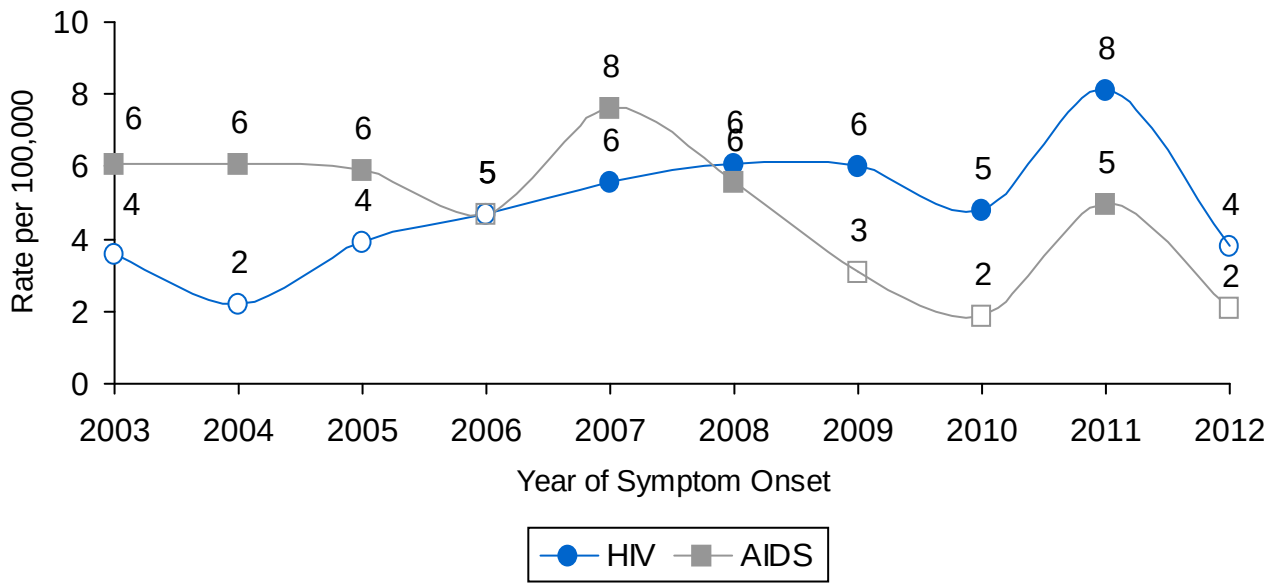


Figure 20: Rate of Newly Reported HIV and AIDS Cases among Monterey County Residents: 2003-2012
Hollow symbols indicate the rate was based on small numbers and should be considered statistically unstable.

The figure above presents HIV and AIDS incidence rates separately in order to highlight the burden of disease within Monterey County. Subsequently, HIV and AIDS case data in this section have been combined, as appropriate, in order to support programmatic intervention and prevention efforts to reduce the transmission of HIV and increase linkage to care.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 30, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

STIs: HIV/AIDS, 2010 - 2012

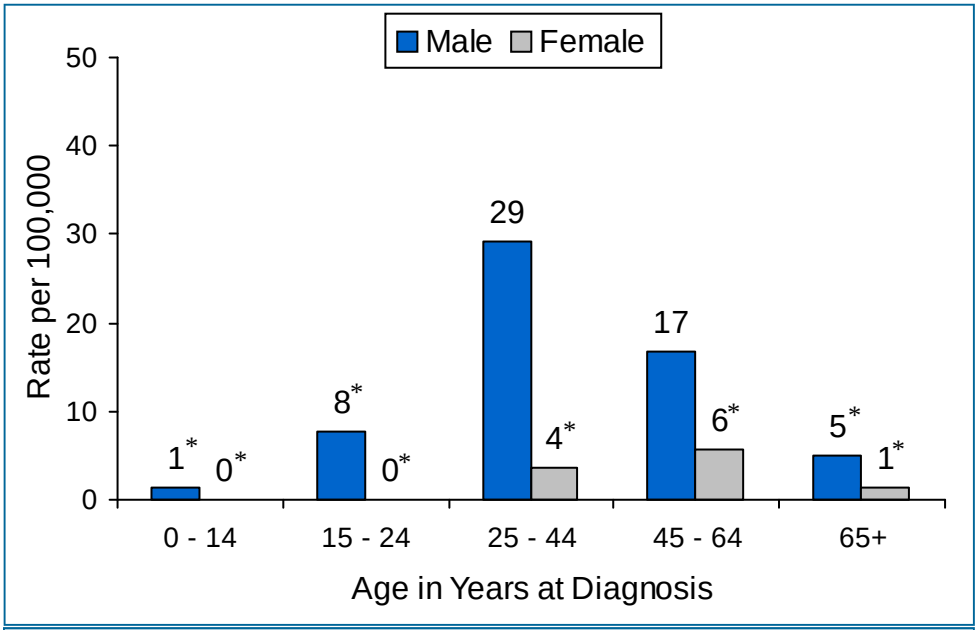


Figure 21: Rate of New HIV/AIDS Diagnosis among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Rates of newly diagnosed HIV/AIDS were highest among males 25 to 44 years of age. Rates among this group were significantly higher than all other age/gender groups except for males ages 45 to 64 years.
- Rates were higher among males than females across all age groups. There was a significant difference between males and females in age groups less than 45 years of age.
- Due to the relatively long incubation period for HIV/AIDS, delay in diagnosis, and data collection limitations, true incidence (new infections) could not be estimated.

Racial/Ethnic Disparities

- Rates of new HIV/AIDS diagnosis were higher among African Americans than among all other racial/ethnic groups.
- There were no significant differences found between racial/ethnic groups, unlike previous years that demonstrated a significant difference between African Americans and all other racial/ethnic groups. Although there has been an apparent decline in rates among African Americans over time, statistical comparisons between race/ethnic groups are limited due to analyses of small numbers.

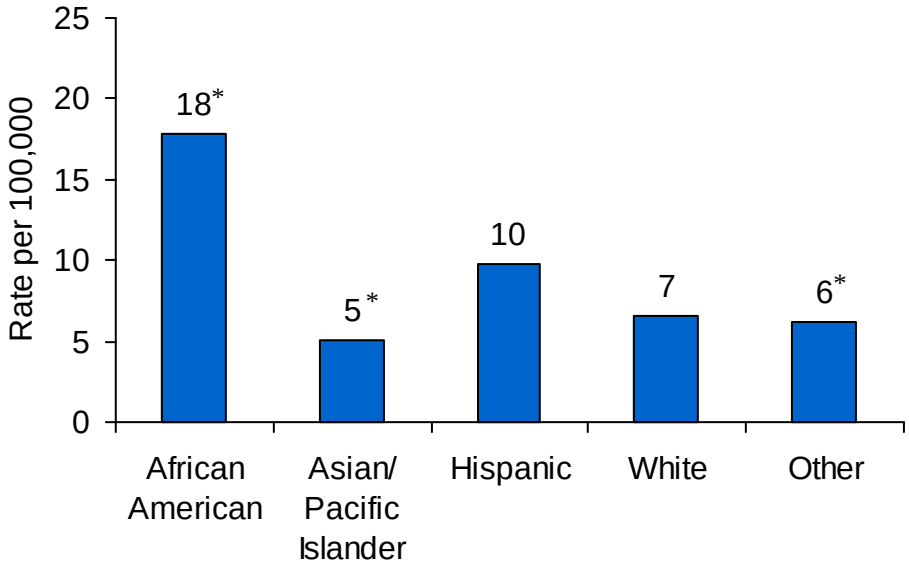


Figure 22: Rate of New HIV/AIDS Diagnosis among Monterey County Residents by Race/Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 30, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

STIs: HIV/AIDS

Table 3: New HIV/AIDS Diagnoses among Monterey County Residents by Exposure Category: 2010-2012

Exposure Category	Males		Females		Total	
	n	%	n	%	n	%
Men Who Have Sex with Men (MSM)	60	64.5	-	-	60	55.6
Injection Drug Use (IDU)	2	2.2	0	0.0	2	1.9
MSM and IDU	1	1.1	-	-	1	0.9
Recipient of Clotting Factor, Blood, Blood Components, Organs, Tissues, or Artificial Insemination	0	0.0	0	0.0	0	0.0
Heterosexual Contact	3	3.2	8	53.3	11	10.2
Perinatal Exposure	0	0.0	0	0.0	0	0.0
Not Reported /Not Identified	27	29.0	7	46.7	34	31.5
Total	**93**	**100.0**	**15**	**100.0**	**108**	**100.0**

Risk Groups

- Men who have sex with men (MSM) represented the largest risk group among Monterey County residents recently diagnosed with HIV/AIDS.
- Among females, heterosexual contact was the most commonly reported risk behavior.
- Approximately a third of newly reported HIV/AIDS cases were missing exposure information, making exposure information difficult to interpret.

Table 4: Individuals Currently Living with HIV/AIDS in Monterey County by Residential Region, 2012

Geographic Region	HIV		AIDS		Total	
	n	%	n	%	n	%
Monterey Peninsula/Big Sur	61	39.1	192	46.2	253	44.2
North County	11	7.1	20	4.8	31	5.4
Salinas Urban Area	65	41.7	156	37.5	221	38.6
South County	19	12.2	48	11.5	67	11.7
Total	**156**	**100.0**	**416**	**100.0**	**572**	**100.0**

Burden of Disease

- The largest proportion of individuals currently living in Monterey County who have been diagnosed with HIV/AIDS resided in the Monterey Peninsula/Big Sur area.
- About 39% of individuals living with HIV/AIDS in Monterey County resided in the Salinas area.
- This information is helpful when planning care and treatment services.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 30, 2013.

STIs: HIV/AIDS, 2008 - 2012

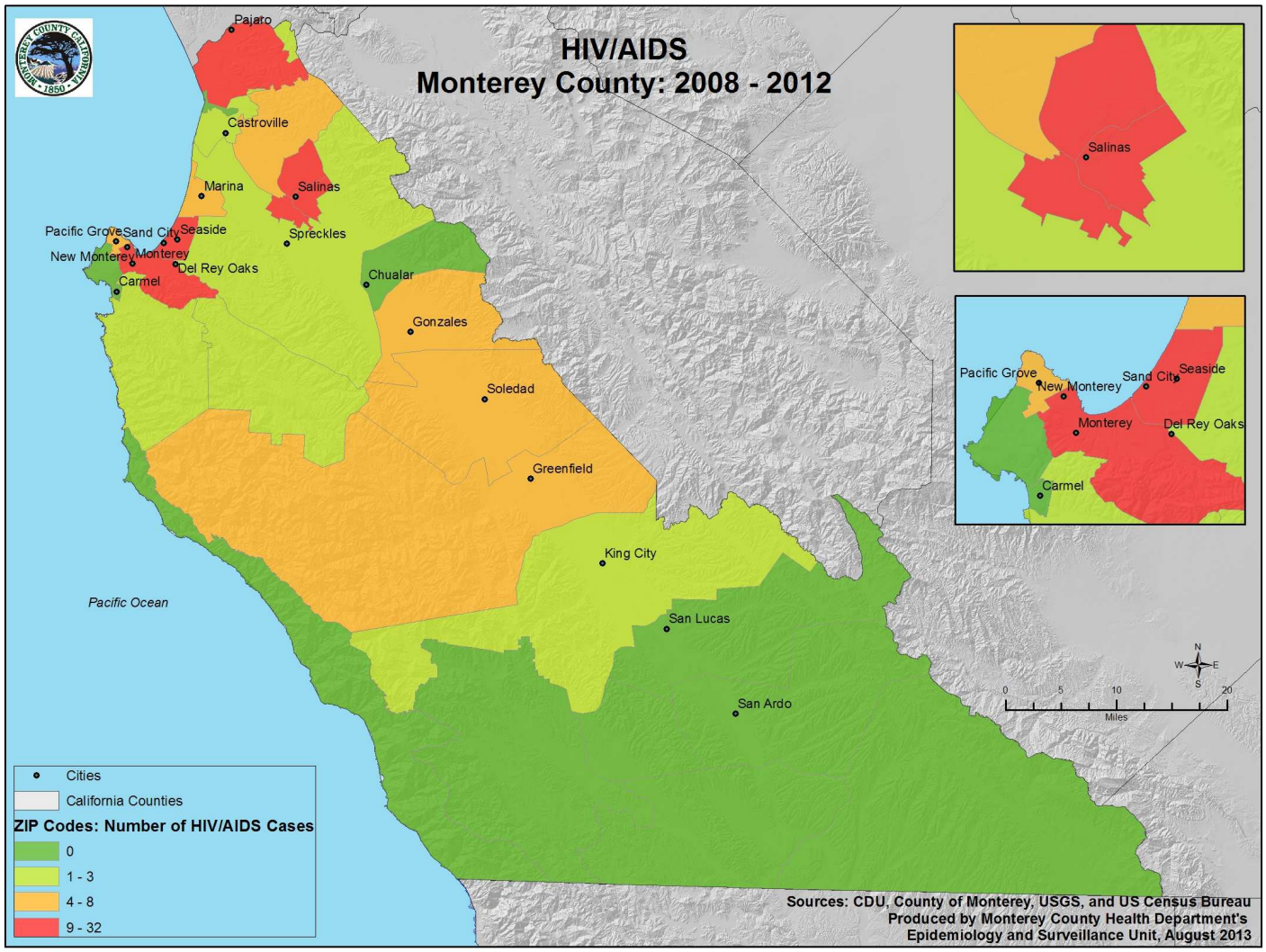


Figure 23: Newly Reported HIV/AIDS Cases among Monterey County Residents by Residential ZIP Code at Diagnosis: 2008-2012

Geographic Distribution

- ZIP codes with HIV/AIDS case counts in the highest quartile included Monterey, Seaside, Salinas, and Watsonville.
- ZIP codes with case counts in the lowest quartile included Pebble Beach, Chualar, Big Sur, and extreme South County.
- Spatial trends for HIV/AIDS should be interpreted with caution due to diagnostic and reporting delays.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 30, 2013.

STIs: HIV/AIDS

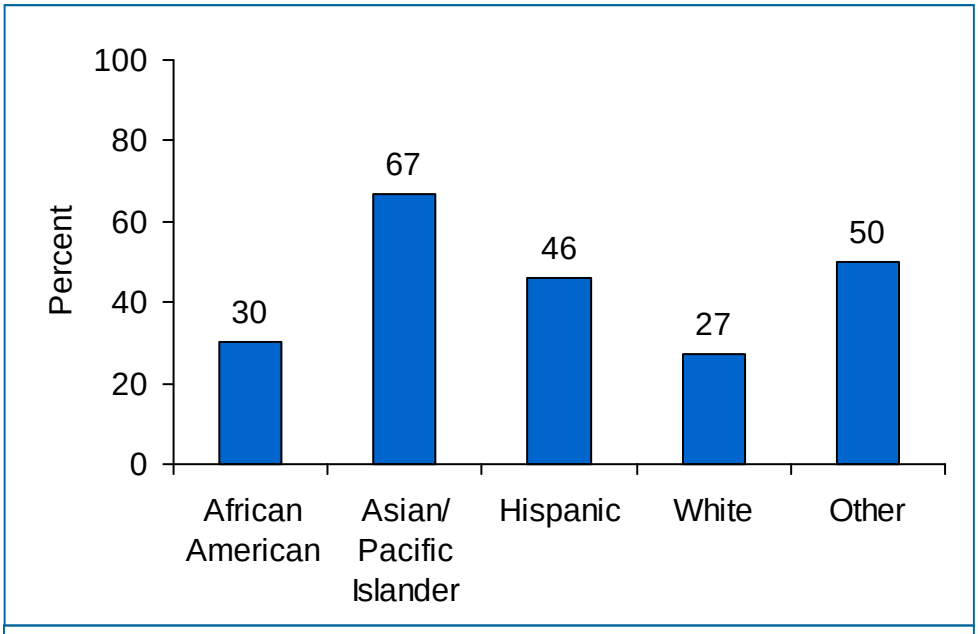


Figure 24: Proportion of Monterey County Residents Infected with HIV Who Progressed to AIDS within 12 Months of HIV Diagnosis by Race/Ethnicity, 2007-2011.

Progression to AIDS

- Among Asian/Pacific Islanders diagnosed with HIV, 67% progressed to AIDS within 12 months of HIV diagnosis. This was the largest proportion in any race/ethnic group.
- Hispanics and Others also had a high proportion of individuals with an HIV diagnosis who progressed to AIDS within 12 months.
- These data suggest that Asian/ Pacific Islanders, Hispanics, and African Americans encounter more barriers to early diagnosis and treatment than Whites.

Survival Following AIDS Diagnosis

- Health outcomes have improved dramatically for individuals diagnosed with AIDS following the advent of antiretroviral therapies.
- Prior to 1988, only 10% of individuals diagnosed with AIDS survived 36 months after diagnosis.
- Most individuals (92%) diagnosed with AIDS between 2005 and 2009 survived at least 36 months.
- The proportion surviving 36 months was much lower among Others.
- African Americans and Hispanics also had a lower proportion of individuals surviving 36 months after AIDS diagnosis than Whites and Asian/Pacific Islanders.

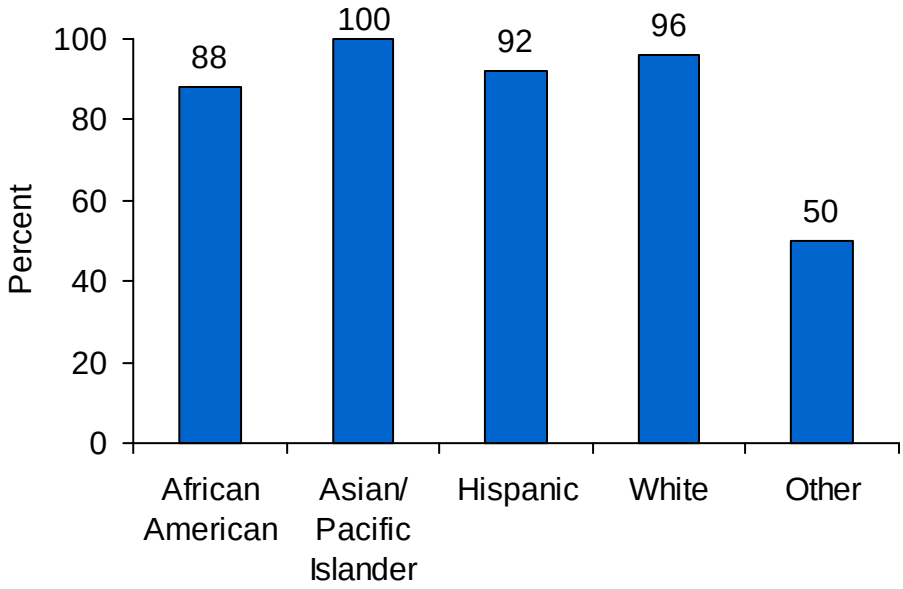


Figure 25: Proportion of Monterey County Residents Surviving for More than 36 Months after an AIDS Diagnosis, 2005-2009.

Source: Monterey County Health Department Communicable Disease Unit, data are current as of June 30, 2013

Vaccine Preventable Diseases (VPDs)

Many infectious diseases can be prevented through administration of a recommended schedule of vaccinations. Cases of vaccine-preventable diseases continue to be reported among Monterey County residents due to personal belief exemptions that allow an individual to decline vaccination for themselves or their children, waning immunity following vaccination, and international travel that exposes susceptible travelers to diseases. Detailed data on pertussis (whooping cough), chronic hepatitis B, and animal rabies are shown. Confirmed, probable, and suspect pertussis cases; confirmed and probable chronic hepatitis B cases; and confirmed animal rabies cases are included in the data presented in this section. Other vaccine preventable diseases such as influenza, meningococcal disease, measles, mumps, and rubella are not included in this section.

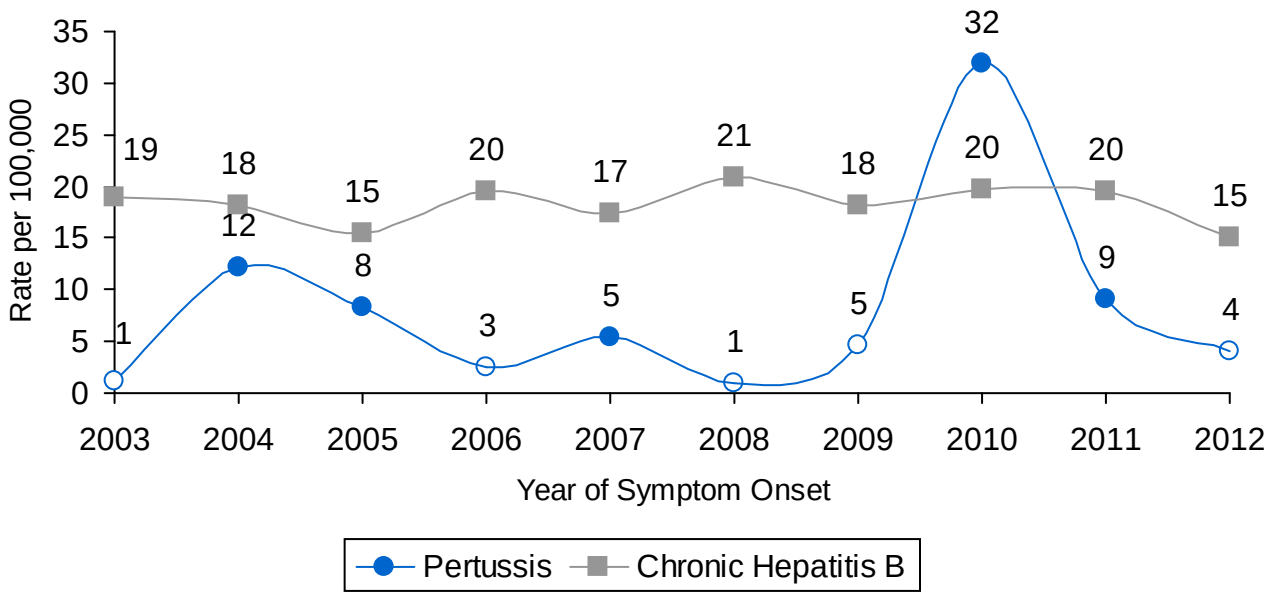


Figure 26: Rate of Selected Vaccine Preventable Diseases among Monterey County Residents: 2003-2012
Hollow symbols indicate the rate was based on small numbers and should be considered statistically unstable.

Vaccine-preventable disease rates are at or near record lows. Even though most infants and toddlers in Monterey County have received all recommended vaccines by age 2, many children remain under-immunized, leaving the potential for outbreaks of disease. Many adolescents and adults are under-immunized as well, missing opportunities to protect themselves against diseases such as hepatitis B, influenza, and pneumococcal disease. The Health Department works closely with public health agencies and private partners to improve and sustain immunization coverage so that this public health success story can be maintained for future generations.

Healthy People 2020 Targets:

Pertussis: 2,500 cases per year in the U.S. among children under 1 year of age; 2,000 cases per year among adolescents ages 11-18 years (no target developed for rate)

Acute Hepatitis B: 0.0 cases per 100,000 individuals 2 to 18 years old; 1.5 cases per 100,000 individuals age 19 and older (no target developed for chronic hepatitis B)

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

VPDs: Pertussis, 2010 - 2012

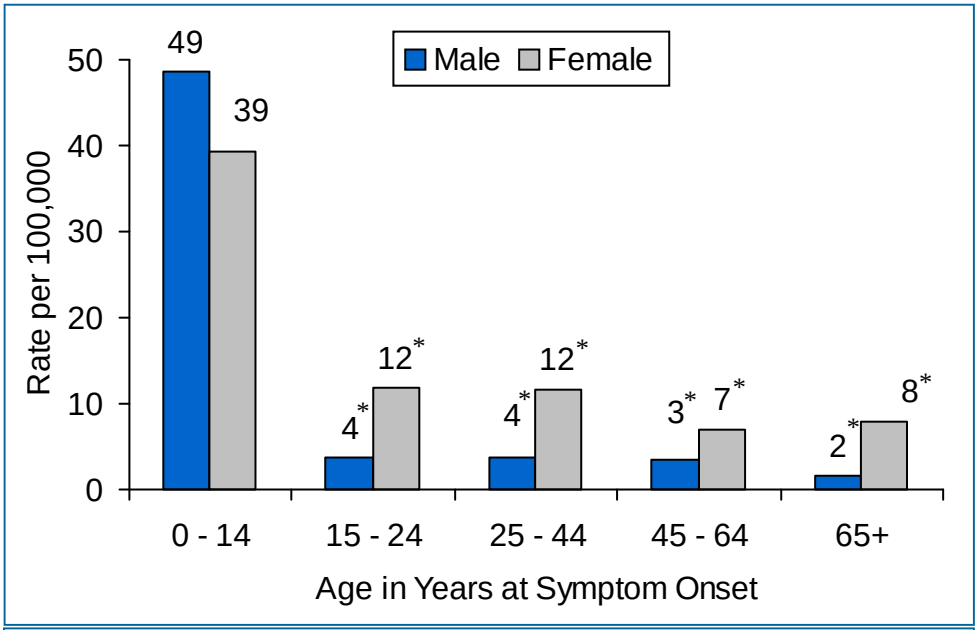


Figure 27: Rate of Pertussis among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Except for the youngest age group, rates of pertussis were higher among females than males of the same age group. However, these rates were not significantly different.
- Rates among the 0 to 14 age group were significantly higher compared to all other age groups, for both genders.
- Rates among adults indicate a need for pertussis vaccination across all age groups to protect infants, who are at the highest risk for severe disease.

Racial/Ethnic Disparities

- Rates of pertussis were highest among Hispanics of any race.
- Asian/Pacific Islanders had the second highest incidence of pertussis.
- There was no significant difference in pertussis incidence rates between racial/ethnic groups.

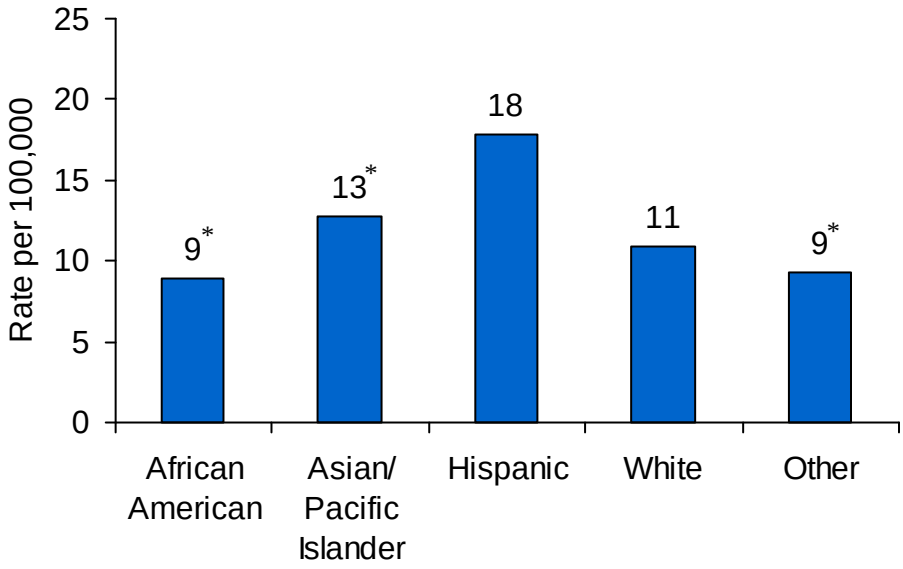


Figure 28: Rate of Pertussis among Monterey County Residents by Race/Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

VPDs: Pertussis, 2012

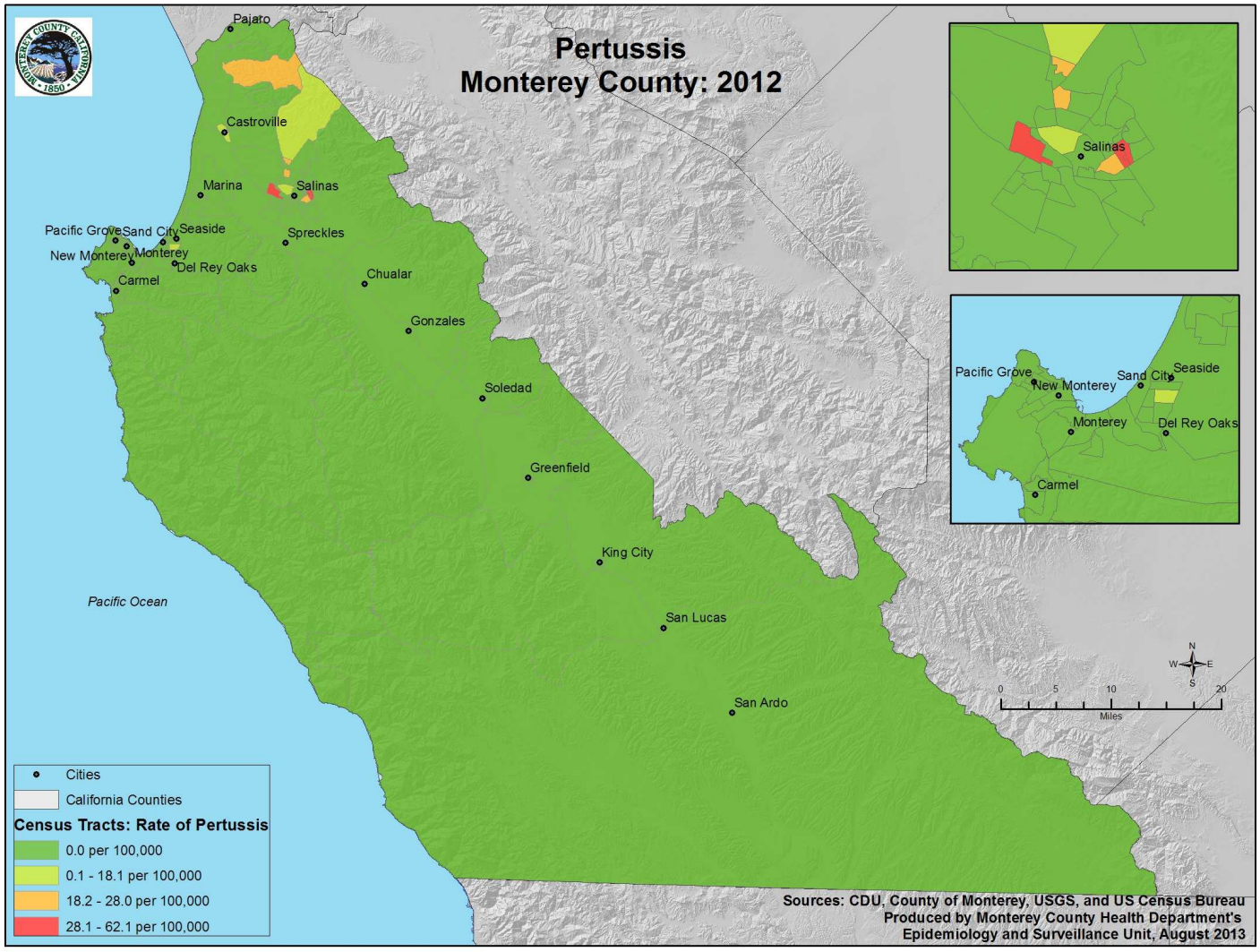


Figure 29: Rate of Pertussis among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with pertussis incidence rates in the highest quartile included portions of Salinas.
- Most Census tracts in Monterey County had low incidence rates.
- Spatial distribution of pertussis in communities may be related to socioeconomic factors (e.g., crowded housing conditions), limited access to preventative services, and/or personal beliefs about vaccination.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

VPDs: Chronic Hepatitis B, 2010 - 2012

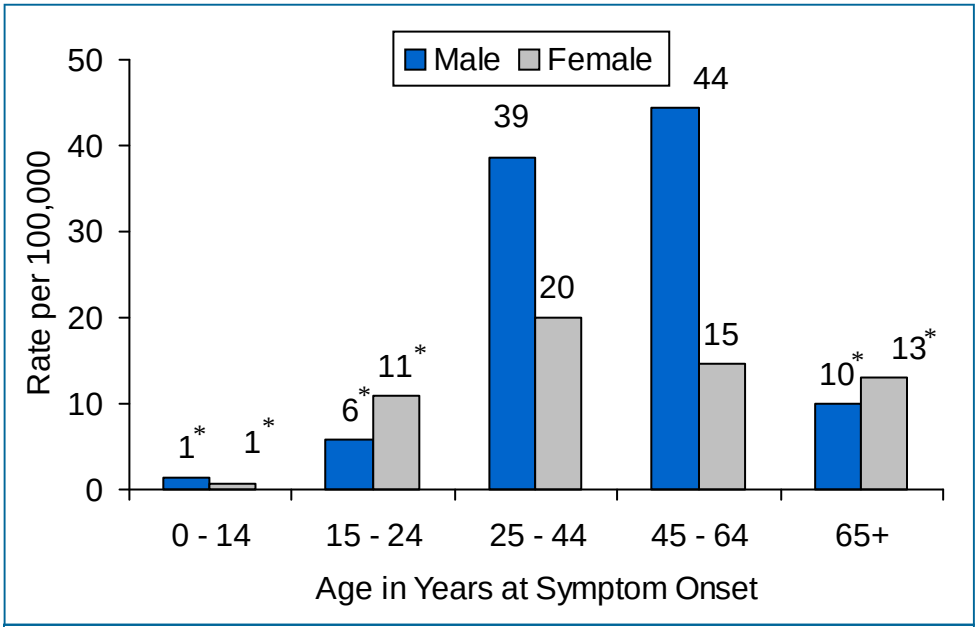


Figure 30: Rate of Chronic Hepatitis B among Monterey County Residents by Age Group and Gender: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Comparing males to females, males 25 to 44 and 45 to 64 years old had significantly higher rates of chronic hepatitis B infection than women of the same age groups.
- Among males, rates for 45 to 64 years olds were significantly higher than among all other age groups except 25-44 year olds.
- Among females, rates were highest among those age 25 to 44. There was no significant difference in rates between females in age groups 15 years and older.

Racial/Ethnic Disparities

- Chronic hepatitis B rates were highest among Asian/Pacific Islanders. Although data were not available on most reported cases, this likely reflects previous international exposure rather than recent domestic transmission.
- African Americans had the second highest rate of hepatitis B among Monterey County residents.
- Rates among Hispanics, Whites, and Others were significantly lower than rates among Asian/Pacific Islanders and African Americans.

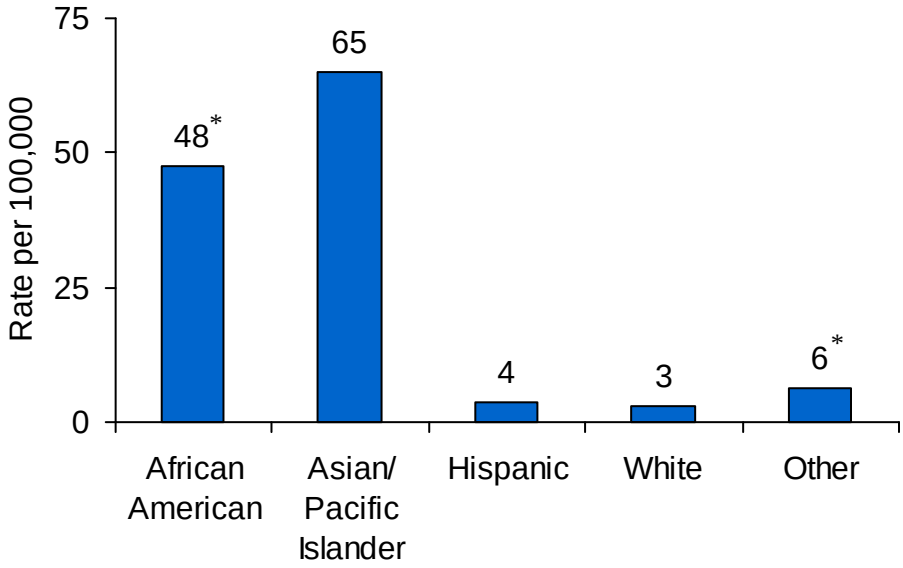


Figure 31: Rate of Chronic Hepatitis B among Monterey County Residents by Race/ Ethnicity: 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

VPDs: Chronic Hepatitis B, 2012

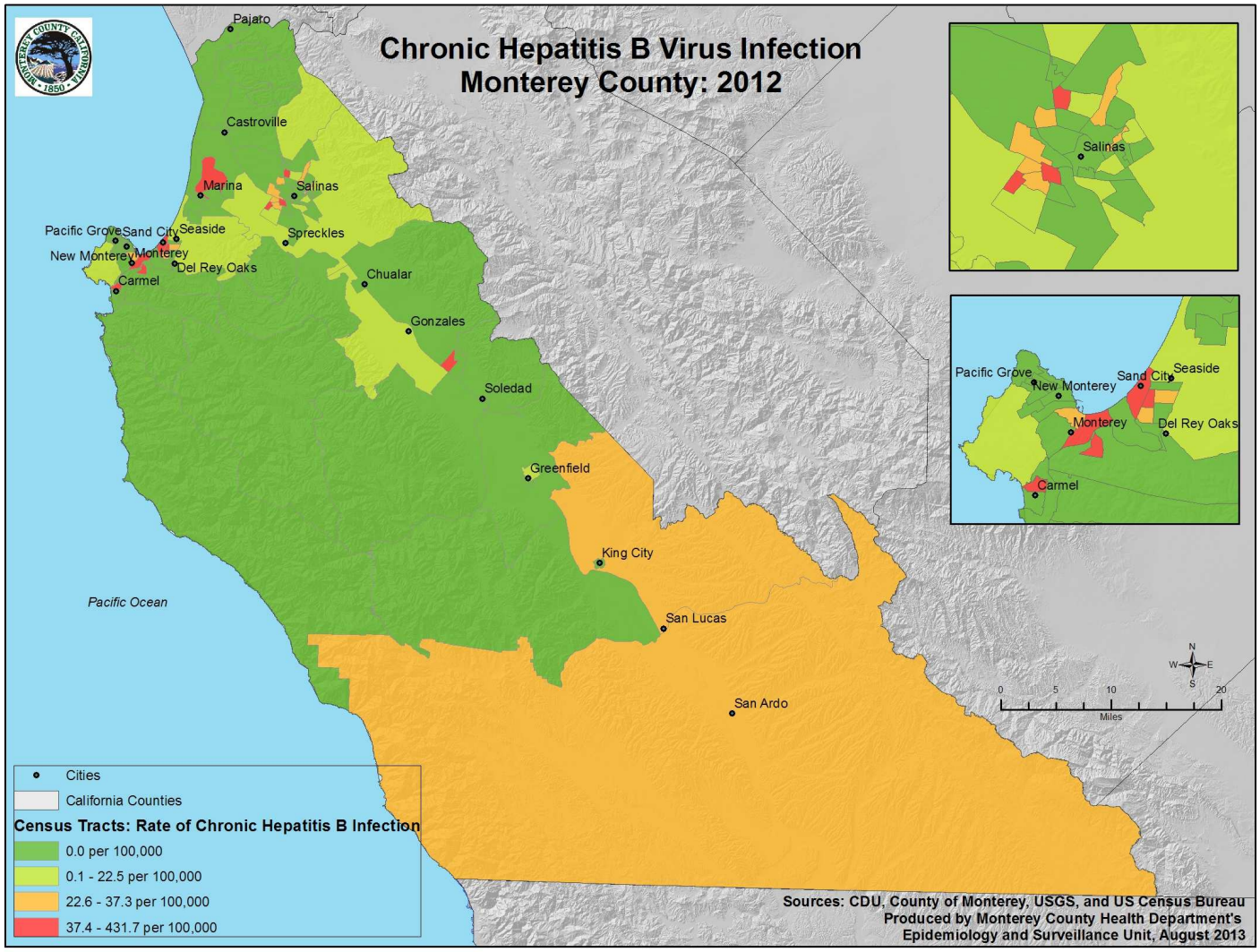


Figure 32: Rate of Chronic Hepatitis B among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with incidence rates in the highest quartile included portions of Monterey, Carmel, Seaside, Marina, Salinas, and the correctional institutions.
- Census tracts with incidence rates in the lowest quartile included Big Sur, most of North County, Chualar, and Soledad.
- Spatial distribution of hepatitis B among Monterey County residents may reflect the underlying population distribution of communities rather than disease transmission patterns.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

VPDs: Rabies, 2008 - 2012

Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. The rabies virus infects the central nervous system, ultimately causing disease in the brain and death. The majority of rabies cases reported in Monterey County each year are among skunks and bats. However, it is possible for wild animals to spread the rabies virus to pets and humans. Therefore, rabies prevention remains a high priority.

Table 5: Number of Animals Tested for Rabies in Monterey County by Species: 2008-2012

Species	2008		2009		2010		2011		2012	
	N Tested	N Positive	N Tested	N Positive	N Tested	N Positive	N Tested	N Positive	N Tested	N Positive
Bat	32	3	32	2	20	0	28	2	16	1
Cat	13	0	8	0	14	0	10	0	5	0
Dog	13	0	7	0	19	0	18	0	13	1
Domestic Livestock	1	0	4	0	2	0	3	0	1	0
Other Pet	0	0	0	0	0	0	0	0	0	0
Other Wild Carnivore	7	0	4	0	1	0	0	0	1	0
Raccoon	6	0	2	0	5	0	1	0	0	0
Rodent	0	0	0	0	0	0	1	0	2	0
Skunk	28	3	18	4	25	5	8	0	11	5
Total	**100**	**6**	**75**	**6**	**86**	**5**	**69**	**2**	**49**	**7**

Rabies in humans is 100% preventable through prompt, appropriate medical care. However, more than 55,000 people, mostly in Africa and Asia, die from rabies each year - a rate of one person every ten minutes (CDC, 2013). To help prevent rabies in your community:

1. Visit your veterinarian with your pet on a regular basis and keep rabies vaccinations up-to-date for all cats, ferrets, and dogs.
2. Maintain control of your pets by keeping cats indoors and by keeping dogs under direct supervision.
3. Spay or neuter your pets to help reduce the number of unwanted pets. Unwanted pets are often unvaccinated and therefore susceptible to rabies.
4. Do not leave pet food unattended outside. Unattended food can attract wild animals like skunks, raccoons, and opossums that can transmit diseases to your pets and you.
5. Do not approach or handle skunks or bats. Contact animal control for assistance with these and other wild animals.

Source: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013.

VPDs: Rabies, 2008 - 2012

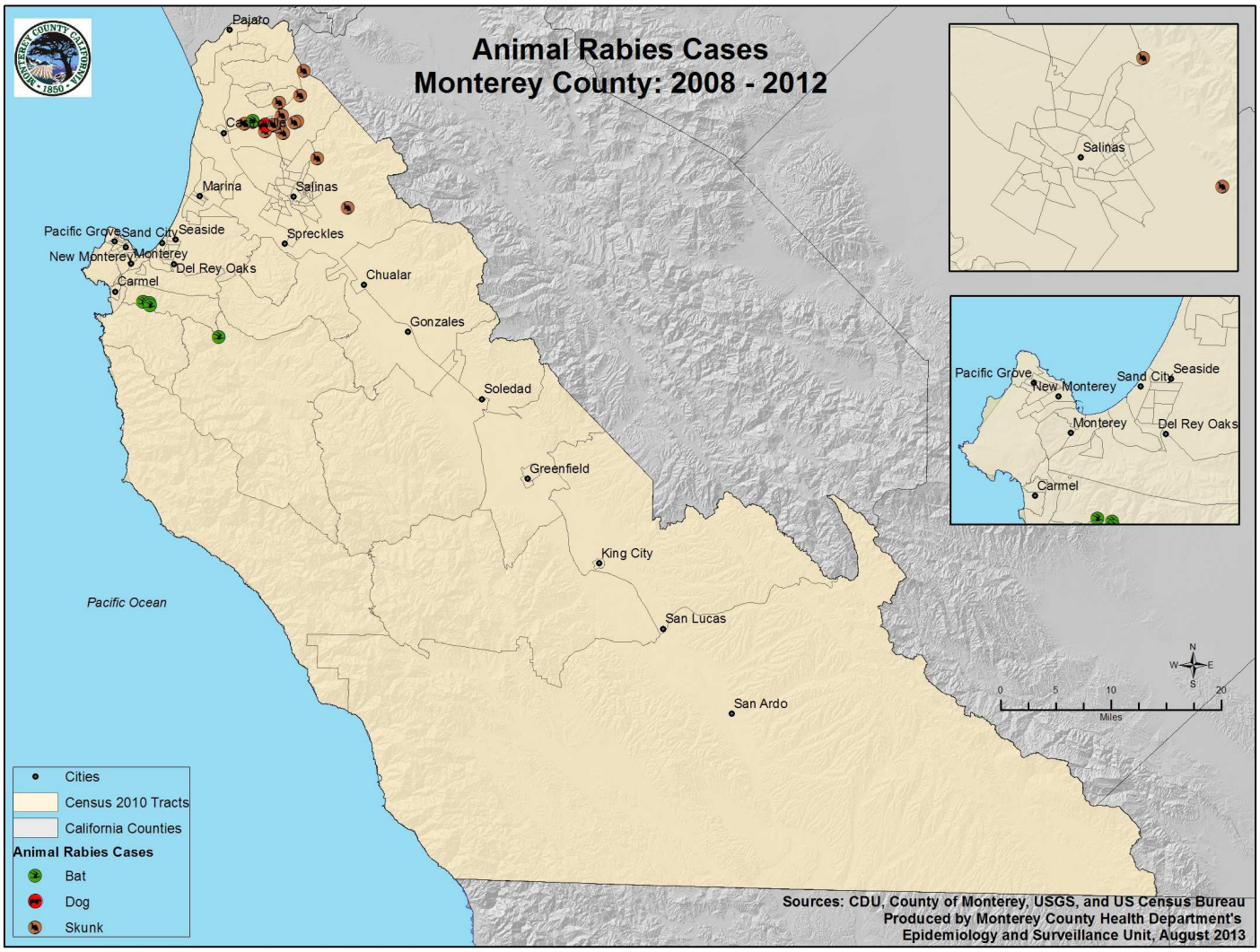


Figure 33: Animal Rabies Cases in Monterey County: 2008-2012

Geographic Distribution

- While rabies is considered enzootic (always present in certain animal populations) across Monterey County, the majority of skunks found to be infected with the rabies virus were located in North Monterey County.
- The majority of rabid bats were collected from the Carmel Valley region.
- A domestic dog infected with the rabies virus was located in North Monterey County.
- It is important that residents of all areas within Monterey County take steps to protect themselves and their pets against rabies.

Source: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013.

Vectorborne Diseases

From the perspective of infectious diseases, vectors are transmitters of disease-causing organisms. Vectors carry the pathogenic organisms from one host to another. Arthropods such as ticks, mosquitoes, and fleas are the most important disease vectors. Vectorborne illnesses include malaria, dengue, Lyme disease, and West Nile virus, among others. Vectors for several infections are found in Monterey County, including the tick species *Ixodes pacificus* which transmits Lyme disease, and the mosquito species *Culex tarsalis* and *Culex pipiens* that transmit West Nile Virus. In addition, people traveling to Monterey County from other countries have imported infections of concern. Small case numbers of these infections preclude analysis by demographic characteristics. Confirmed, probable, and suspect vectorborne cases are included in this report .

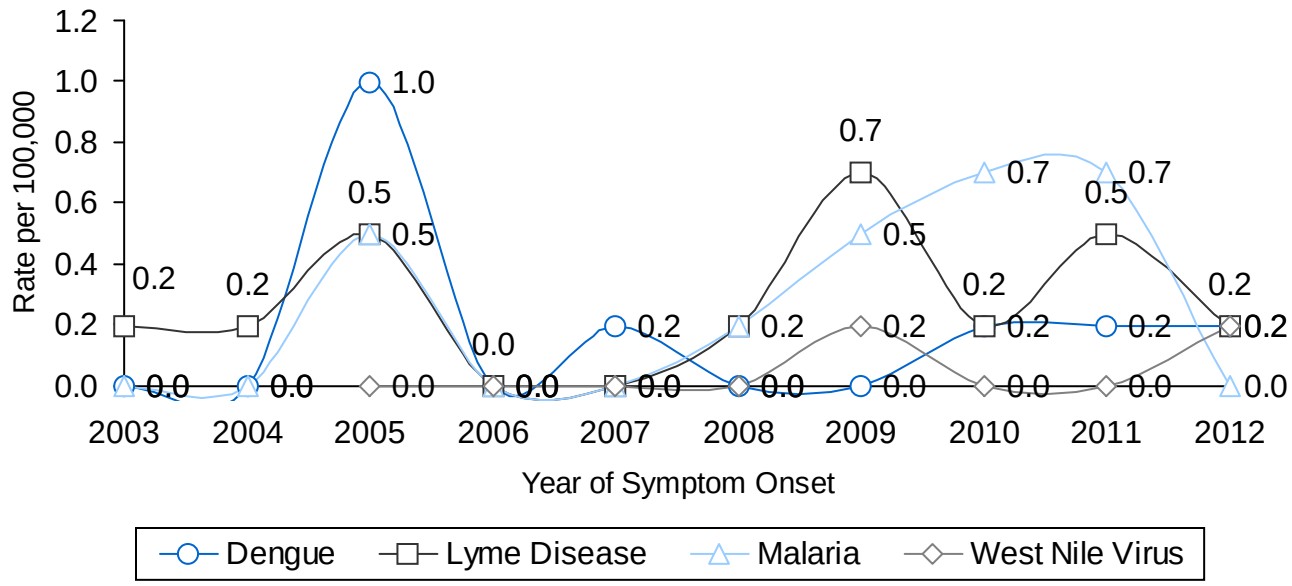


Figure 34: Rate of Vectorborne Diseases among Monterey County Residents: 2003-2012
Hollow symbols indicate the rate was based on small numbers and should be considered statistically unstable.

To reduce the possibility of being bitten by insects or arthropods that can transmit diseases:

- Use an insect repellent on exposed skin to repel mosquitoes, ticks, fleas and other arthropods. EPA-registered repellents include products containing DEET (N,N-diethylmetatoluamide) and picaridin (KBR 3023). DEET concentrations of 30% to 50% are effective for several hours. Picaridin, available at 7% and 15% concentrations, needs more frequent application.
- When using sunscreen, apply sunscreen first and then repellent. Repellent should be washed off at the end of the day before going to bed.
- Wear long-sleeved shirts (which should be tucked in), long pants, and hats to cover exposed skin. Wear light-colored or white clothing so ticks can be more easily seen.
- When you visit areas with ticks and fleas, wear boots, not sandals, and tuck pants into socks.
- Inspect your body and clothing for ticks during outdoor activity and at the end of the day. Removing ticks right away can prevent some infections.

Healthy People 2020 Targets:

Malaria: 999 cases per year in the U.S. (no target developed for rate)

No targets have been developed for the other vectorborne illnesses.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Vectorborne Diseases: West Nile Virus, 2008 - 2012

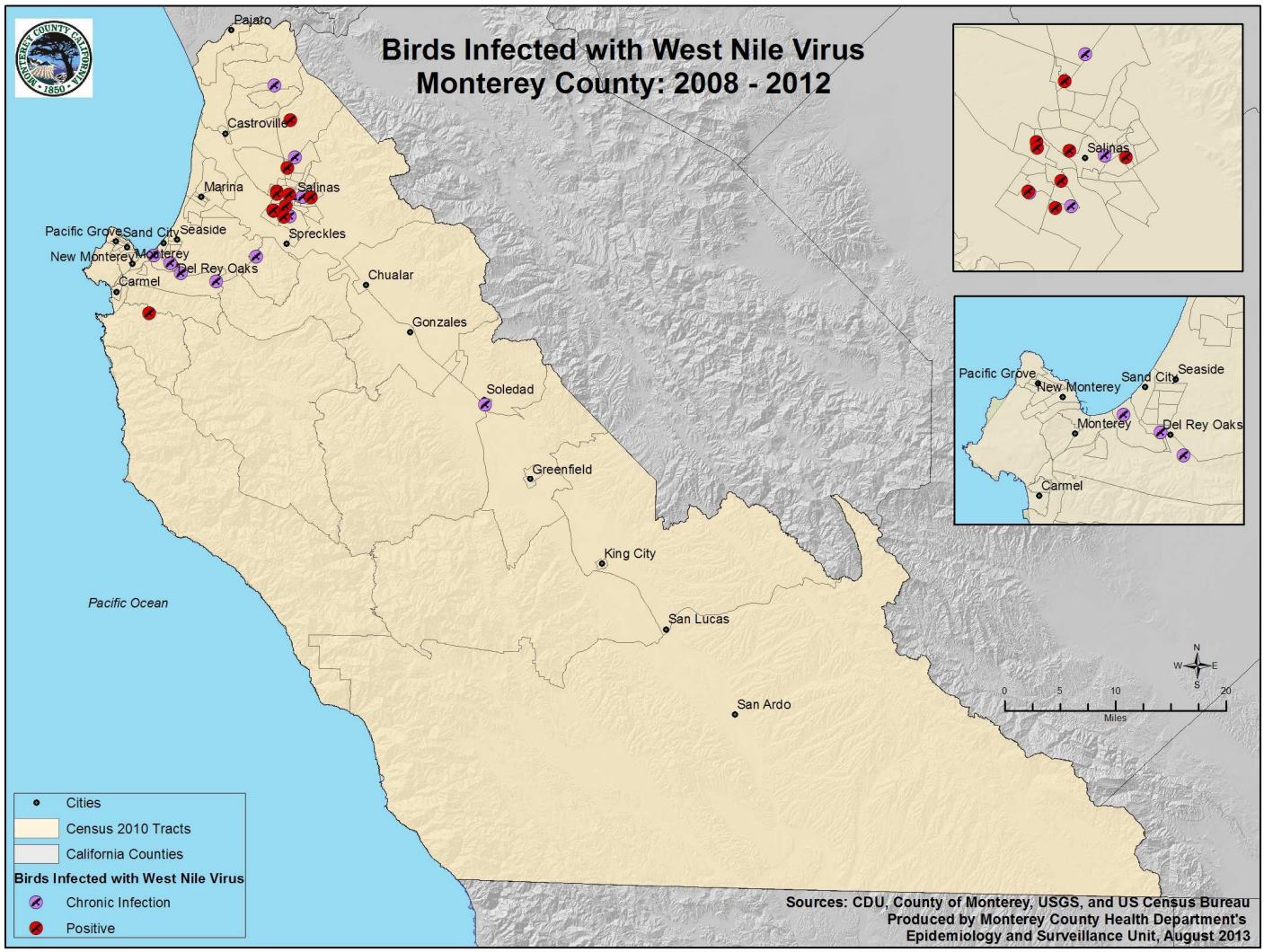


Figure 35: Birds Positive for West Nile Virus in Monterey County: 2008-2012

Geographic Distribution

- The majority of collected birds that tested positive for West Nile virus were found in the Salinas and Prunedale regions and around the Hwy 68 corridor of Monterey County.
- Acutely positive birds (indicated in red on the above map) have high levels of virus found when tested. This means that the bird was recently infected, and recent transmission is occurring in the county.
- Birds testing positive with chronic infections (shown in purple above) have low levels of virus in their systems. This means the bird was infected in the past. Chronic positive birds do not indicate recent transmission.
- All birds that tested positive within Monterey County between 2010 and 2012 have been chronically infected.

Source: Monterey County Health Department Communicable Disease Unit and the California Department of Public Health, data are current as of June 6, 2013.

Other Reportable Diseases

Other reportable diseases of public health concern with relatively high morbidity include chronic hepatitis C, tuberculosis, and coccidioidomycosis. Liver failure due to chronic hepatitis C infection is one of the most common causes for liver transplants in the United States (CDC, 2013). Incidence of coccidioidomycosis, also called Valley Fever, is increasing in Monterey County. Rates of infection were 415% higher in 2012 than in 2003. Tuberculosis (TB) is one of the world's most common diseases. In 2011, nearly 9 million people worldwide became ill due to infection with TB (CDC, 2013).

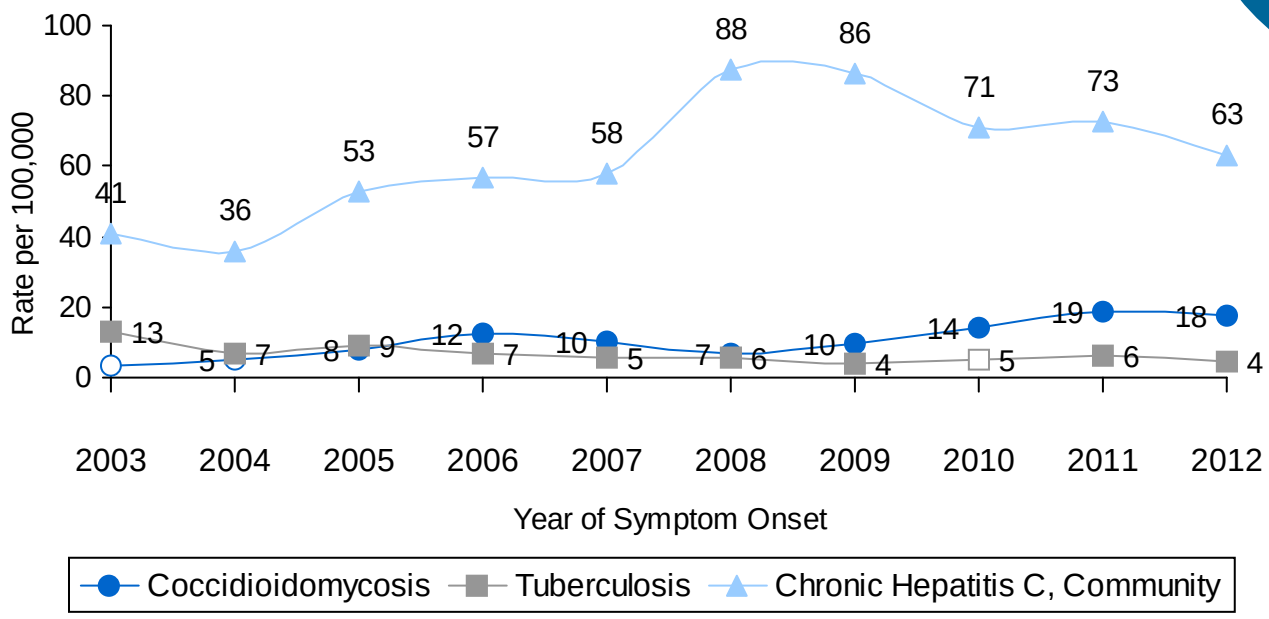


Figure 36: Coccidioidomycosis, Tuberculosis, and Community-Based Chronic Hepatitis C among Monterey County Residents: 2003-2012
Hollow symbols indicate the rate was based on small numbers and should be considered statistically unstable.

Care and treatment for these diseases create a burden on our healthcare system. The average lifetime cost for care and treatment of chronic hepatitis C, in the absence of a liver transport, is about $100,000 per patient. Liver transplant increases the cost per patient to about $280,000 (C. Everett Koop Institute, 2013). Antifungal therapy for coccidioidomycosis can cost as much as $20,000 per year per patient (Galgiani, et. al., 2005). In the United States, direct medical costs for TB were estimated at $703 million. About 86% of these funds were spent on treatment; prevention activities only accounted for 14% of all costs (Brown, et. al., 1995). Changes in the national healthcare landscape provide unprecedented opportunities to raise the profile and importance of disease prevention and health promotion. Focusing on prevention and early intervention can significantly reduce the burden of disease and reduce health care costs associated with these diseases.

Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Healthy People 2020 Targets:

Acute Hepatitis C: 0.25 new cases per 100,000 (no target developed for chronic hepatitis C)

Tuberculosis: 1.0 case per 100,000 population

Coccidioidomycosis: No target developed; see section of this report on climate change (pg. 6) for more information on how this disease is being used as a sentinel indicator.

Other Diseases: Chronic Hepatitis C, 2010 - 2012

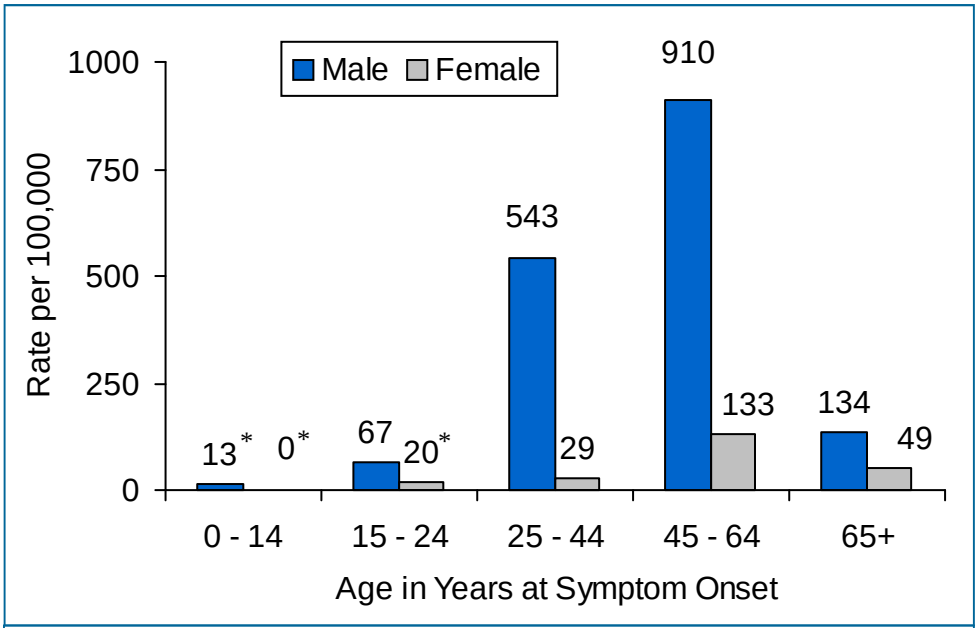


Figure 37: Rate of Chronic Hepatitis C among Monterey County Residents by Age Group and Gender: 2010-2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Rates of chronic hepatitis C infection were significantly higher among males than females of the same age group for all age groups.
- Among males, rates were highest among individuals 45 to 64 years old. Rates among males of each age group were significantly different from each other.
- Among females, rates among the 45 to 64 age group were significantly higher compared to all other age groups.

Racial/Ethnic Disparities

- Rates of chronic hepatitis C infection among African Americans were significantly higher than among other racial/ethnic groups.
- Whites had the second highest rate of chronic hepatitis C infection. Rates among this group were significantly higher than rates among Asian/Pacific Islanders and Hispanics.
- Information on race/ethnicity was missing on 81% of reported cases. Racial and ethnic data should be interpreted with caution.

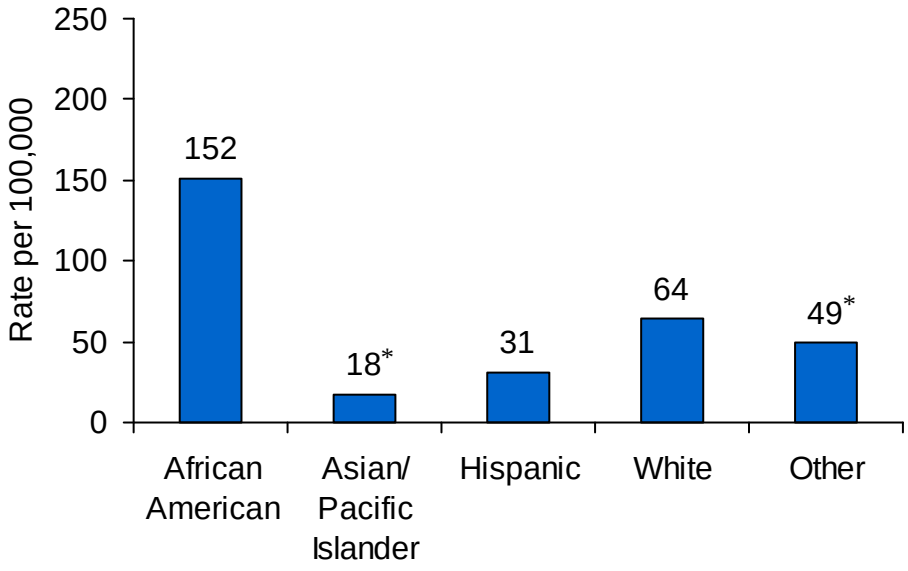


Figure 38: Rate of Chronic Hepatitis C among Monterey County Residents by Race/Ethnicity: 2010-2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: Data presented on this page include both community- and correctional-based cases. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Other Diseases: Chronic Hepatitis C, 2012

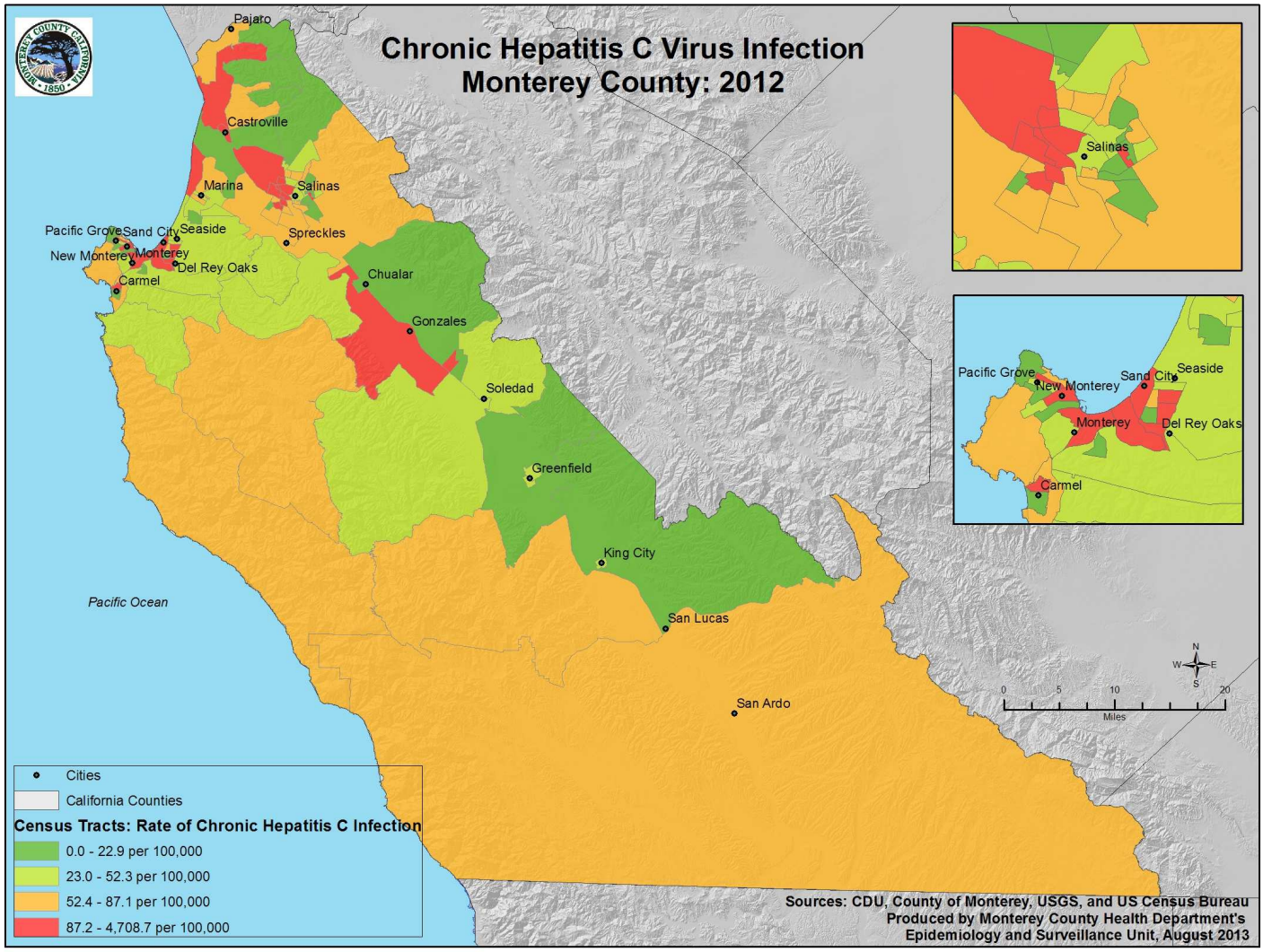


Figure 39: Rate of Chronic Hepatitis C among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with rates in the highest quartile included portions of Carmel, Monterey, Seaside, Marina, Castroville, Salinas, Gonzales, and the correctional institutions.
- Census tracts with rates in the lowest quartile for Monterey County residents included portions of Pacific Grove, Aromas, Chualar, Greenfield, and King City.
- Recent changes in screening recommendations may affect the distribution patterns of newly reported chronic hepatitis C cases in the coming years.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

Other Diseases: Coccidioidomycosis, 2010 - 2012

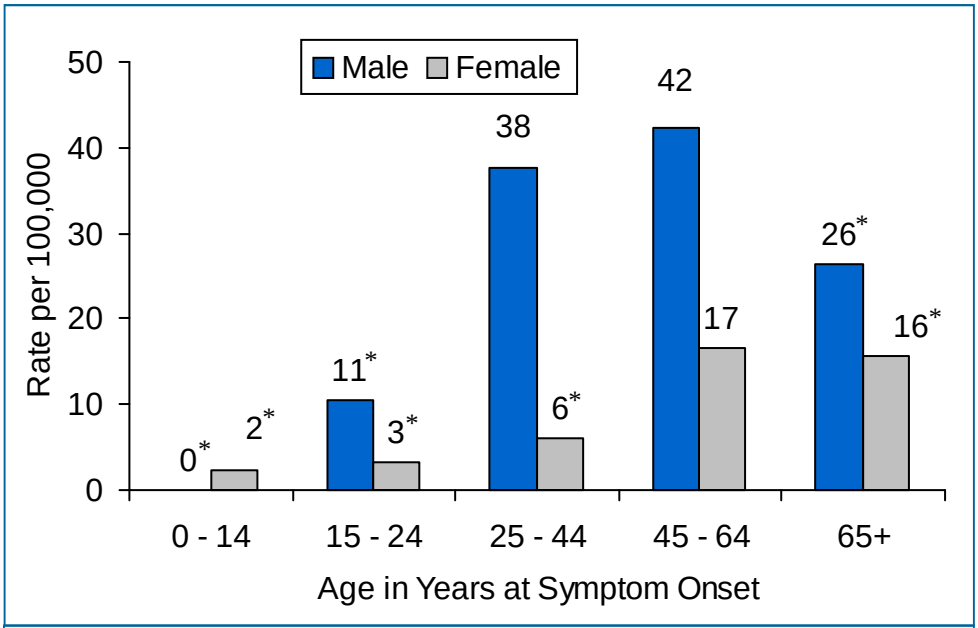


Figure 40: Rate of Coccidioidomycosis among Monterey County Residents by Age Group and Gender: 2010-2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- In general, rates were higher among males than among females of the same age group. There were significant differences between genders in the 25 to 44 and 45 to 64 year old age groups.
- Among males, rates were highest among those 45 to 64 years of age but not significantly different from rates among the 25 to 44 and 65+ age groups.
- Among females, rates were also highest among those 45 to 64 years. Rates in this age group were significantly different from females in the 0 to 24 age groups.

Racial/Ethnic Disparities

- Rates of coccidioidomycosis were highest among African Americans. Rates were significantly higher among this group than among all other racial/ethnic groups.
- Whites had the lowest rates of coccidioidomycosis among Monterey County residents; however, rates among Whites were not significantly different than any other racial/ethnic groups except African Americans.
- Race/ethnicity information was missing for 29% of reported cases. Therefore, information on race/ethnicity should be interpreted with caution.

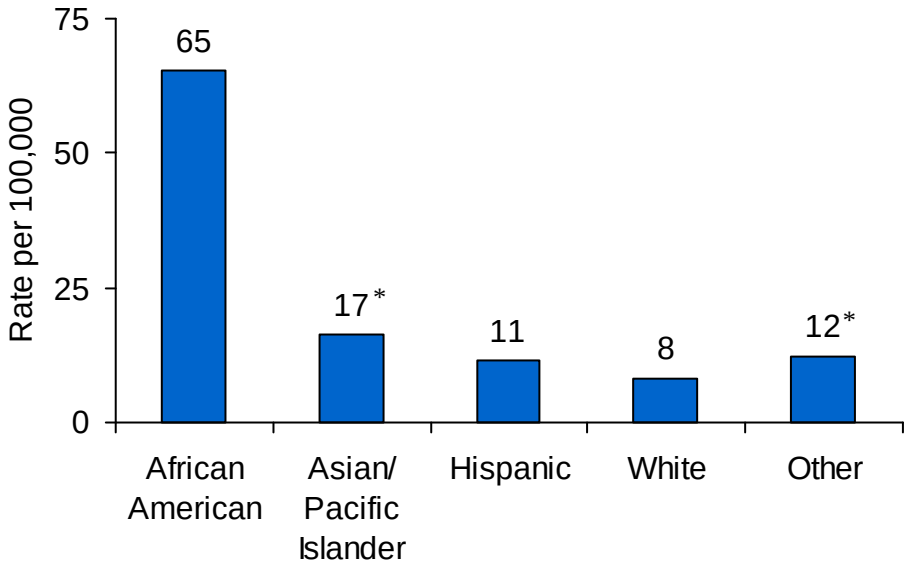


Figure 41: Rate of Coccidioidomycosis among Monterey County Residents by Race/ Ethnicity: 2010-2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Other Diseases: Coccidioidomycosis, 2012

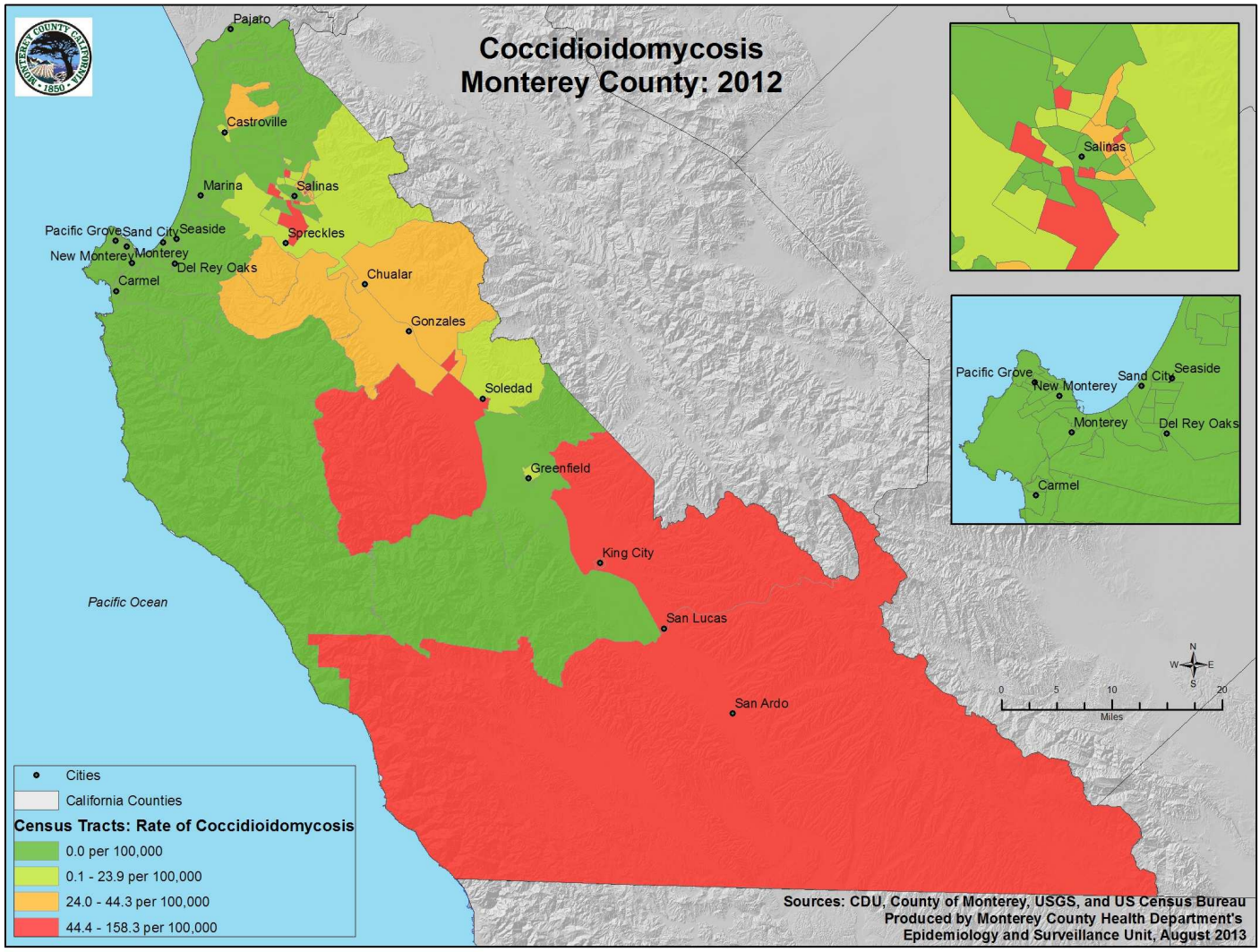


Figure 42: Rate of Coccidioidomycosis among Monterey County Residents by US Census Bureau Tracts: 2012

Geographic Distribution

- Census tracts with incidence rates in the highest quartile included the correctional institutions, Soledad, King City, and most of extreme South County.
- Census tracts with incidence rates in the lowest quartile included the Peninsula, Big Sur, Greenfield, and North County regions.
- Spatial patterns should be interpreted with caution. They reflect the geographic region of residence and not necessarily the location of exposure.

Notes: Rates are based on small numbers and should be interpreted with caution. See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: U.S. Census Bureau.

Other Diseases: Tuberculosis, 2010 - 2012

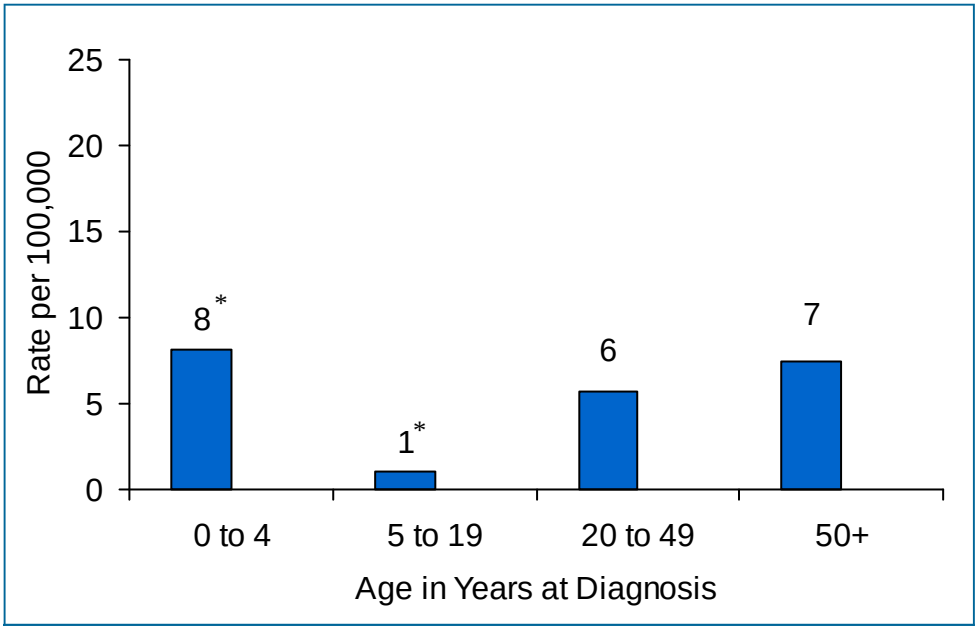


Figure 43: Rate of Active Tuberculosis among Monterey County Residents by Age Group: Cases Diagnosed 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Risk Groups

- Data limitations precluded showing both age and gender distributions at the same time.
- Rates among males were higher than among females; however, there was no significant difference in the rates between genders (data not shown).
- Rates were highest among individuals ages 4 years and younger.
- Rates among individuals 5 to 19 years of age were significantly lower than among other age groups.

Racial/Ethnic Disparities

- Asian/Pacific Islanders were disproportionally affected by tuberculosis, with incidence rates significantly higher than among any other racial/ethnic group.
- Hispanics had the second highest incidence of tuberculosis among Monterey County residents. Rates among this group were significantly different from all other racial/ethnic groups.
- Statewide, international birth was the most common risk factor associated with a diagnosis of active tuberculosis (California Department of Public Health Tuberculosis Control Branch, 2012).

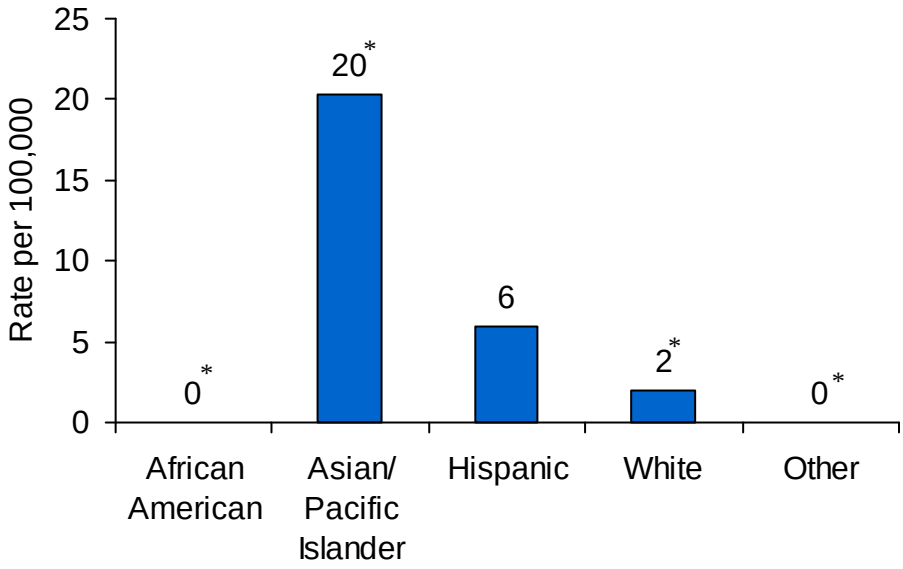


Figure 44: Rate of Active Tuberculosis among Monterey County Residents by Race/Ethnicity: Cases Diagnosed 2010‑2012
*Rate based on small numbers and should be considered statistically unstable.

Notes: See Technical Notes at the end of this document for information on rate calculation and significance testing.
Source: Case data: Monterey County Health Department Communicable Disease Unit, data are current as of June 6, 2013. Population data: State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010. Sacramento, California, September 2012; State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060. Sacramento, California, January 2013.

Technical Notes

Background

The Monterey County Health Department maintains a mandatory passive reporting system for diseases and conditions specified in Title 17 of the California Code of Regulations. Healthcare providers and laboratories are required to report suspected cases of communicable diseases and conditions to their local health departments. In turn, local health departments are required to report qualifying cases to the California Department of Public Health, who forwards reports to the Centers for Disease Control and Prevention. This section of the *Epidemiologic Report of Communicable Diseases in Monterey County* describes the methods and limitations used to summarize the epidemiology of selected communicable diseases reported to and investigated by the Monterey County Health Department. The dissemination of information on the health of the community is a core function and essential service of public health. The data in this report provide important health information on the magnitude and burden of communicable diseases in Monterey County. Bearing in mind their limitations, these data can help identify high risk groups needing preventative actions and track the effectiveness of disease control and prevention policies, regulations and practices.

Methods

Data Sources

Most of the data presented in this year's report were extracted from the Monterey County Communicable Disease Unit's morbidity databases. Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) data were entered into the California Department of Public Health Office of AIDS's database (eHARS) then transferred back to the Monterey County Health Department. Infant botulism data were provided by the California Department of Public Health Infant Botulism Treatment and Prevention Program. Information on reported cases of tuberculosis was provided by the Monterey County Tuberculosis Control Unit. Pesticide illness reports were provided by the Monterey County Environmental Health Bureau. State of California Department of Finance projections were used to estimate age, gender, and racial/ethnic specific populations within Monterey County (*State of California, Department of Finance, Race/Hispanics Population with Age and Gender Detail, 2000–2010*. Sacramento, California, September 2012; *State of California, Department of Finance, Report P-3: State and County Population Projections by Race/Ethnicity, Detailed Age, and Gender, 2010-2060*. Sacramento, California, January 2013). Inmate population data were obtained from mid-year census counts provided by the California Department of Corrections and Rehabilitation.

Definitions

The race and ethnicity information included in this report are based on the following categories: African American/Black (non-Hispanic); Hispanic/Latino (regardless of racial designation); White (non-Hispanic); Asian/Pacific Islander (non-Hispanic); Native American/Alaskan Native (non-Hispanic); Multi-racial (two or more races); Other (non-Hispanic), and Unknown/Not Specified (no race or ethnicity information was available). For the purposes of this report, Native American/Alaskan Native, Multi-racial, and Other were combined into one group called "Other."

Cases were defined using laboratory and/or clinical evidence of infection or disease as outlined by the most recent communicable disease surveillance case definitions published by the Centers for Disease Control and Prevention or by the Council of State and Territorial Epidemiologists. By California regulation, an animal case was one that was determined by an authorized person to do so (e.g., licensed veterinarian or microbiologist).

Technical Notes (Continued)

Onset date was estimated as the date closest to the time when symptoms first appeared. Because date of onset was not recorded for many cases, date of diagnosis or date of case report - whichever was earliest in time - was used as an approximation when date of onset was absent from the morbidity report. The calculation is often referred to as “best date” in reports by other agencies.

Data Analysis

SAS Enterprise Guide 5.1 software (SAS Institute, Inc., Cary, North Carolina) was used to generate frequency tables and evaluate temporal trends via Poisson regression models. For temporal trends, probability values ≤0.05 were considered statistically significant. The difference between rates of different demographic groups was considered statistically significant if their 95% confidence intervals did not overlap. Rates were calculated per 100,000 population unless otherwise specified. Rates were stratified by age group, gender, and race/ethnicity. A rate was defined as statistically unreliable when its relative standard error (RSE) was ≥23%. This threshold is consistent with recommendations from the National Center for Health Statistics. To reduce the level of random error and increase the stability of the rates, the timeframe for rates was expanded, and multi-year average rates were produced. Formulae used to calculate rates, standard errors, and relative standard errors are available upon request.

Morbidity Maps

Morbidity maps were created using ArcEditor 10.0 (ESRI, Redlands, California). Small case numbers precluded mapping of every reportable disease; therefore, only select diseases with high rates and/or high public health significance were included. Rates were displayed by quartiles (four equal interval categories) for ease of visual interpretation. Rates with a value of zero were grouped into the same quartile. Selection of this type of categorization may have lead to introduction of cut-point bias. U.S. Census Bureau tracts from the 2010 census were the unit of spatial representation. Census tracts were designed to include about 2,500 to 8,000 individuals who are similar in terms of economic status and living conditions. Census tracts were chosen over other geographic units (e.g., ZIP codes) because they are more robust for spatial analysis and are the current unit of analysis for California Department of Public Health mapping projects, allowing for better comparisons across jurisdictions.

Limitations

Because race/ethnicity can be an important marker for complex social, economic, and political factors that influence health, rates by race/ethnicity were calculated among cases with complete information. The substantial amount of missing race/ethnicity data from laboratory reports and Confidential Morbidity Reports limits the interpretation of the influences of race/ethnicity on these data. The majority of case reports originate from laboratories, a source which does not routinely collect data on race/ethnicity. Further, many healthcare service providers do not routinely record the race/ethnicity of patients. The observed racial/ethnic disparities may reflect true differences in the infection rates, differential access to healthcare, and/or varying reporting practices of providers that serve different populations.

Age-adjusted rates were not calculated. Therefore, rate comparisons between other counties or geographic entities should be interpreted carefully. Differences in the underlying age distribution of the populations may account for some of the variation between locations, especially for diseases likely to occur more frequently in a certain age group.

Technical Notes (Continued)

All rates, even those based on full population counts, are subject to random error. Random error may be substantial when the number of cases is small (e.g., less than 20) and can make it impossible to distinguish random fluctuations from true changes in the underlying risk of disease. Rates based on small numbers should be interpreted with caution.

The numbers of disease cases in this report are likely to underestimate the true magnitude of disease. Factors that may contribute to underreporting are delays in notification, limited or inappropriate testing of specimens, lack of cooperation of clinicians and laboratories, and limited resources and competing priorities within the public and private healthcare communities. Factors that may contribute to increased reporting are disease severity, the availability of new or less expensive diagnostic tests, changes in the surveillance case definition, recent media or public attention, and active surveillance activities.

Because of inherent delays in case reporting and depending on the length of follow-up clinical, laboratory and epidemiologic investigations, cases with eligible onset dates may be added or rescinded after the date of this report. Therefore, data contained in this report are provisional and may differ from data published in past and/or future reports.

Questions or comments about the content of this report or about information not included in this publication may be directed to:

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Works Cited

Brown RE, Miller B, Taylor WR, et al. 1995. Health-care expenditures for tuberculosis in the United States. *Arch Intern Med*; 155(15): 1595-1600.

C. Everett Koop Institute. 2013. Hepatitis C: an epidemic for everyone. Available via the Internet: http://www.epidemic.org/theFacts/theEpidemic/USHealthCareCosts/.

Centers for Disease Control and Prevention. 2013. Estimates of foodborne illness in the United States. Available via the Internet: http://www.cdc.gov/foodborneburden/index.html.

Centers for Disease Control and Prevention. 2013. Hepatitis C. Available via the Internet: http://www.cdc.gov/hepatitis/HCV/index.htm.

Centers for Disease Control and Prevention. 2013. Rabies. Available via the Internet: http://www.cdc.gov/rabies/.

Centers for Disease Control and Prevention. 2013. Tuberculosis (TB). Available via the Internet: http://www.cdc.gov/tb/.

English PB, Sinclair AH, Ross Z, Anderson H, Boothe V, Davis C, Ebi K, Kagey B, Malecki K, Shultz R, Simms E. 2009. Environmental health indicators of climate change for the United States: findings from the State Environmental Health Indicator Collaborative. *Environ Health Perspect;* 117(11):1673-81.

Galgiani JN, Ampel NM, Blair JE, Cantanzaro A, Johnson RH, Stevens DA, and Williams PL. 2005. Coccidioidomycosis. *CID*; 41:1217-23.

United States Department of Health and Human Services. 2013. Healthy People 2020 Objectives. Available via the Internet: http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx.