Florida Morbidity Statistics Report

2008

Florida Department of Health
Division of Disease Control
Bureau of Epidemiology
4052 Bald Cypress Way, Bin # A-12
Tallahassee, Florida 32399-1720
850-245-4401

http://www.doh.state.fl.us/

Florida Morbidity Statistics Report 2008:
http://www.doh.state.fl.us/disease_ctrl/epi/Morbidity_Report/amr_2008.pdf

Published August 2009

Table of Contents

Acknowledgements

Disease control and prevention is one of the core functions of any city, county, local, or state public health agency. Indeed, the mission of the Florida Department of Health is “to promote, protect and improve the health of all Floridians.” With this in mind, there has been a worrisome trend in the re-emergence of diseases that were considered rare even just a decade ago. Many of these re-emerging diseases are vaccine-preventable and have seen a resurgence in parts of the state, country, and world where immunization coverage rates have slipped. There have been reports of measles outbreaks in many European countries as well as internationally imported cases in Australia and New Zealand. The ease of international travel and the popularity of Florida as a destination make cases of infectious disease in foreign countries a real threat to the health of Floridians. Additionally, the decrease in immunization rates in the U.S. puts many more people at risk and increases the possibility of endemic transmission of many of these diseases.

Protection of the public’s health from these emerging and re-emerging diseases is a collaborative effort by many within and outside the Florida Department of Health and requires diligence in all areas. Our most important partners facing this emerging trend are the physicians, nurses, laboratorians, hospital infection control practitioners and other health care professionals who participate in reportable disease surveillance. Without their participation, our ability to recognize and intervene in emerging public health issues would be impeded.

The Bureau of Epidemiology would like to thank the other program areas within the Florida Department of Health that contributed information to this report including the Bureau of Immunization, Bureau of HIV/AIDS, Bureau of Sexually Transmitted Diseases Prevention and Control, Bureau of Tuberculosis and Refugee Health, and Bureau of Environmental Public Health Medicine. Finally, many thanks are extended to the County Health Department staff and other public health professionals who are involved in reportable disease surveillance, either through disease control activities, case investigations, data collection, or other essential functions.

We hope readers will find this document useful when setting priorities and directions for action at the individual and community levels to improve the health of all Floridians.

Julia Gill, Ph.D., M.P.H.
Chief, Bureau of Epidemiology

Florida Morbidity Statistics Report Staff

Editors

Kate Goodin, M.P.H.	Bureau of Epidemiology
Aaron Kite-Powell, M.S.	Bureau of Epidemiology
Janet J. Hamilton, M.P.H.	Bureau of Epidemiology
Richard S. Hopkins, M.D., M.S.P.H.	Bureau of Epidemiology
Leesa Gibson , M.S.	Bureau of Epidemiology

Contributors

Rebecca Alcantara, R. N.	Duval County Health Department
Margie Alderman	Hendry County Health Department
Isabel Anasco, R.N., B.S.N.	Alachua County Health Department
David Atrubin, M.P.H.	Hillsborough County Health Department
Taj Azarian, M.P.H.	Duval County Health Department
Lauren Ball, D.O., M.P.H.	Bureau of Epidemiology
Rosanna Barrett, M.P.H.	Bureau of Environmental Public Health Medicine
Mary Beverly, R.S.	Escambia County Health Department
Carina Blackmore, D.V.M., Ph.D.	Bureau of Environmental Public Health Medicine
Dean Bodager, R.S., M.P.A., D.A.A.S	Bureau of Environmental Public Health Medicine
Tracinda Bush	Bureau of HIV/AIDS
Pedro Castellon, M.P.H.	Collier County Health Department
Adrian Cooksey, M.P.H.	Bureau of Sexually Transmitted Diseases Prevention and Control
Virginia Crandall, R.N., B.S.N., M.P.H.	Citrus County Health Department
John DePasquale, M.D., M.P.H.	Bureau of Epidemiology
Timothy Doyle, M.P.H.	Bureau of Epidemiology
Russell Eggert, M.D., M.P.H.	Division of Disease Control
Leah Eisenstein, M.P.H.	Bureau of Epidemiology
Brian Fox, M.A.	Bureau of Epidemiology
Kimberly Fraser, M.P.H.	Osceola County Health Department
Mike Friedman, M.P.H.	Bureau of Environmental Public Health Medicine
Kate Goodin, M.P.H.	Bureau of Epidemiology
Roberta Hammond, Ph.D., R.S.	Bureau of Environmental Public Health Medicine
Janet J. Hamilton, M.P.H.	Bureau of Epidemiology
Terri Harder, B.S.N., R.N.	Collier County Health Department
Richard Hutchinson	Bureau of Environmental Public Health Medicine
Diane King, R.N., M.S.P.H.	Palm Beach County Health Department
Marjorie Kirsch, M.D.	Leon County Health Department
Aaron Kite-Powell, M.S.	Bureau of Epidemiology
Catherine Kroll, M.P.H.	Leon County Health Department
Richard S. Hopkins, M.D., M.S.P.H.	Bureau of Epidemiology
Tara Hylton, M.P.H.	Bureau of Epidemiology
Robyn Kay, M.P.H.	Bureau of Epidemiology

Becky Lazensky, M.P.H.	Bureau of Environmental Public Health Medicine
Ryan M. Lowe, M.P.H.	Bureau of Environmental Public Health Medicine
Yvonne Luster-Harvey, M.P.H.	Bureau of Tuberculosis and Refugee Health
Lorene Maddox, M.P.H.	Bureau of HIV/AIDS
Sarah D. Matthews, M.P.H.	Lake County Health Department
Kateesha McConnell, M.P.H.	Bureau of Epidemiology
Travis McLane	Bureau of Epidemiology
Catheryn Mellinger, R.N., B.C.	Bureau of Immunization
Lisa Palmatier, R.N., N.P.S.	Volusia County Health Department
Scott Pritchard, M.P.H.	Sarasota County Health Department
Patricia Ragan, Ph.D., M.P.H.	Bureau of Epidemiology
Edhelene Rico, M.P.H.	Miami-Dade County Health Department
Samantha Rivers, M.S., M.P.H.	Santa Rosa County Health Department
Laura Rutledge, R.N., B.S.N.	Bureau of Immunization
Roger Sanderson, M.A., B.S.N.	Bureau of Epidemiology
Cindy Siegenthaler, R.N.	Lake County Health Department
J. Robert South, Ph.D., M.P.H., P.A.	Lee County Health Department
Danielle Stanek, D.V.M.	Bureau of Environmental Public Health Medicine
Juan Suarez	Bureau of Environmental Public Health Medicine
Holli M. Tietjen, M.S.	Palm Beach County Health Department
Sharleen Traynor, M.P.H.	Charlotte County Health Department
Kathleen Van Zile, R.S., M.P.H.	Bureau of Environmental Public Health Medicine
Donna J. Walsh, M.P.A., R.N., B.S.N.	Orange County Health Department
Janet Wamnes, M.S.	Bureau of Environmental Public Health Medicine
Connie Wolfe, R.N., B.S.N.	Clay County Health Department
Phyllis Yambor, R.N.	Bureau of Immunization

Introduction

Purpose

The Florida Morbidity Statistics Report is compiled to:

1. Summarize annual morbidity from notifiable acute communicable and environmental diseases, and cancer in Florida;
2. Describe patterns of disease as an aid in directing future disease prevention and control efforts; and,
3. Provide a resource to medical and public health authorities at county, state, and national levels.

Report Format

This report is divided into 10 sections:

Section 1: Summary of Selected Notifiable Diseases and Conditions
Section 2: Selected Notifiable Diseases and Conditions
Section 3: Summary of Foodborne Diseases
Section 4: Summary of Antimicrobial Resistance Surveillance
Section 5: Summary of Enhanced Surveillance for Influenza and Community Associated MRSA Deaths
Section 6: Summary of Notable Outbreaks and Case Investigations
Section 7: Recently Published Papers and Reports
Section 8: Summary of Cancer Data, 2006
Section 9: Summary of Revisions to Florida's Notifiable Disease Reporting Rule (Chapter 64D-3, *F.A.C.*)

Data Sources

Data presented in this report are based on reportable disease information received by county and state health department staff from physicians, hospitals, and laboratories. Data on occurrence of reportable diseases in Florida were obtained through passive and sometimes active surveillance. Reporting suspect and confirmed notifiable diseases or conditions in the State of Florida is mandated under Florida Statute 381.0031, Chapter 64D-3, *Florida Administrative Code* (*F.A.C.*). People in charge of laboratories, practitioners, hospitals, medical facilities, or other locations providing health services (can include schools, nursing homes, and state institutions) are required to report diseases or conditions and the associated laboratory test results listed in the Table of Notifiable Diseases or Conditions, Chapter 64D-3 *F.A.C*. Reporting test results by a laboratory does not nullify the practitioner's obligation to also report the disease or condition. These data are the basis for providing useful information on reportable diseases and conditions in Florida to healthcare workers and policymakers, and would not be possible without the cooperation of the extensive network involving both private and public sector participants.

1. Passive surveillance relies on physicians, laboratories, and other healthcare providers to report diseases to the Florida Department of Health (FDOH) using a confidential morbidity report form, electronically, by telephone, or by facsimile.
2. Active surveillance entails FDOH staff regularly contacting hospitals, laboratories, and physicians in an effort to identify all cases of a given disease.
3. Increasingly, information about cases of reportable diseases is passed from providers, especially laboratories, to the FDOH as electronic records, which occurs automatically.

Interpreting the Data

This report should be interpreted in light of the following limitations:

1. Under-reporting
   Evaluations of infectious disease reporting systems have, in general, indicated that the completeness of reporting varies by disease. The less common, more severe reportable diseases such as bacterial meningitis, diphtheria, polio, botulism, anthrax, tuberculosis, and congenital syphilis are more completely reported than the more common but (individually) less severe diseases such as hepatitis A or campylobacteriosis. Variation in reported disease incidence at the local level reflects, to varying degrees, both differences in the true incidence of disease and differences in the vigor with which surveillance is performed.

2. Reliability of Rates
   All incidence rates in this report are expressed as the number of reported cases of a disease per 100,000 population unless otherwise specified. Animal rabies is only reported as the number of cases, because no reliable denominators exist for animal populations. Rates for diseases with only a few cases reported per year can be unstable and should be interpreted with caution. The observation of zero events is especially difficult to interpret. All rates in the report based on fewer than 19 events should be considered unreliable. This translates into a relative standard error of the rate of 23% or more, which is the cut-off for rate reliability used by the National Center for Health Statistics.

3. Reporting Period
   The data in this report are aggregated by the date the case was reported to the Bureau of Epidemiology for each of the years presented, beginning January 1 and ending December 31. Frequency counts included only cases reported during this time. In some cases, diseases reported in 2008 may have onset or diagnosis dates in 2007.

4. Case Definition
   Cases are classified as confirmed, probable, or suspected at the local level, using a published set of surveillance case definitions (Surveillance Case Definitions for Select Reportable Diseases in Florida, available at http://www.doh.state.fl.us/disease_ctrl/epi/surv/CaseDefinitions.html). For cases of selected diseases, these classifications are reviewed at the state level. In this report confirmed and probable cases have been included for all diseases, but no suspected cases have been included.

5. Place of Acquisition of Disease or Condition
   The distribution of cases among Florida counties is determined by the patient's reported county of residence. Cases are allocated to their county of residence regardless of where they became ill or are/were hospitalized, diagnosed, or exposed. Cases in people whose official residence is outside the state of Florida, but who became ill or are/were hospitalized or diagnosed in Florida, are not included. These cases are referred through an interstate reciprocal notification system to the state where the patient resides.

6. Population Estimates
   All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS). The CHARTS system receives its estimates from the Florida Legislature's Office of Economic and Demographic Research (EDR). Estimates are updated once per year in the CHARTS system. Note that previous editions of this report may show somewhat different populations and rates for a given year than the ones shown here, as these estimates are revised periodically.

7. Incomplete Case Information

   Certain analyses may not include all reportable cases of a specific disease due to incomplete case information. For graphs denoting month of onset, it is important to note that only those cases of disease for which an onset date could be determined are included.

Florida County Boundaries

Table A. Florida Population by Year and County, 1999-2008. (Source – Florida CHARTS; accessed February 2009)

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
State Total	15,679,606	16,074,896	16,412,296	16,772,201	17,164,199	17,613,368	18,018,497	18,440,700	18,731,287	18,896,559
Alachua	213,346	219,239	224,397	229,524	232,110	237,374	241,858	244,648	248,183	249,788
Baker	21,498	22,388	22,641	23,105	23,472	24,069	23,980	25,216	25,692	25,905
Bay	147,075	148,692	150,748	152,818	155,414	159,108	162,499	166,160	167,881	168,817
Bradford	25,767	26,110	26,136	26,649	27,084	27,865	28,195	28,685	29,131	29,304
Brevard	469,515	478,541	487,131	497,429	510,622	524,046	534,596	545,460	553,481	557,741
Broward	1,590,361	1,631,445	1,654,923	1,673,972	1,706,363	1,730,580	1,746,603	1,755,392	1,767,538	1,775,101
Calhoun	12,863	13,038	13,101	13,286	13,491	13,636	14,011	14,192	14,545	14,688
Charlotte	139,032	142,357	145,481	149,486	152,865	158,006	153,788	161,731	165,061	166,473
Citrus	116,208	118,689	121,078	123,704	126,475	129,822	133,472	137,690	140,652	142,143
Clay	137,357	141,331	144,161	151,746	157,325	164,868	171,118	178,922	186,014	189,667
Collier	242,408	254,571	267,632	281,148	295,848	309,369	320,859	327,945	335,235	340,589
Columbia	55,446	56,683	57,354	58,537	59,218	60,821	61,744	64,052	65,658	66,429
Dade	2,219,329	2,262,902	2,292,316	2,320,465	2,354,404	2,388,138	2,432,276	2,442,170	2,466,645	2,478,585
Desoto	31,436	32,404	32,741	32,959	33,912	34,220	32,391	33,353	34,086	34,294
Dixie	13,559	13,883	14,154	14,530	14,768	15,054	15,482	15,715	15,826	15,927
Duval	767,860	782,691	797,566	813,817	829,937	843,772	865,965	883,875	900,608	908,378
Escambia	292,937	294,911	297,321	300,421	304,165	308,068	303,240	310,617	311,701	311,924
Flagler	47,559	50,620	53,881	58,004	62,511	71,004	80,559	90,663	94,199	96,912
Franklin	9,710	9,871	9,974	10,250	10,530	10,682	10,909	12,082	12,257	12,286
Gadsden	45,312	45,070	45,419	46,073	46,600	46,965	47,883	48,380	49,630	50,152
Gilchrist	13,980	14,533	14,759	15,140	15,637	16,016	16,303	16,812	17,171	17,375
Glades	10,407	10,595	10,624	10,675	10,759	10,763	10,743	10,849	11,113	11,301
Gulf	13,559	14,785	15,101	15,290	15,691	16,235	16,543	16,565	16,875	17,001
Hamilton	12,831	13,457	13,792	13,952	14,039	14,346	14,319	14,571	14,725	14,763
Hardee	26,543	26,952	27,021	27,474	27,434	27,898	27,277	27,240	27,574	27,650
Hendry	35,608	36,300	36,256	36,174	36,739	37,800	38,610	38,870	39,846	40,295
Hernando	128,733	131,298	133,497	137,613	141,574	146,118	152,049	158,441	163,035	165,329
Highlands	85,892	87,676	88,373	89,343	90,770	92,456	93,807	97,336	98,987	99,760
Hillsborough	978,079	1,005,808	1,034,164	1,062,140	1,085,318	1,114,774	1,137,583	1,171,585	1,197,312	1,209,978
Holmes	18,371	18,620	18,713	18,746	18,983	19,027	19,189	19,525	19,432	19,406
Indian River	110,142	113,755	116,291	118,884	121,887	127,831	130,849	136,546	140,469	142,452
Jackson	46,050	46,998	47,534	47,963	49,218	48,891	49,883	50,286	50,482	51,106

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Jefferson	13,307	12,874	13,107	13,329	13,618	14,110	14,265	14,390	14,513	14,562
Lafayette	6,703	7,061	7,076	7,245	7,394	7,559	8,064	8,092	8,273	8,571
Lake	204,152	212,823	222,988	233,622	242,919	254,246	265,716	279,583	288,078	293,216
Lee	430,644	444,151	459,278	481,014	499,387	526,157	555,874	594,219	620,778	634,660
Leon	236,658	240,631	245,070	249,744	256,921	265,258	272,749	272,573	272,938	273,741
Levy	33,759	34,626	35,325	36,197	36,856	37,691	38,136	39,277	40,219	40,677
Liberty	6,967	7,045	7,145	7,165	7,248	7,372	7,623	7,784	7,763	7,767
Madison	18,596	18,775	18,878	18,974	19,183	19,564	19,738	19,846	19,960	20,018
Manatee	259,039	265,701	272,342	279,366	288,888	297,037	306,557	309,952	317,395	321,323
Marion	253,235	260,407	265,629	273,602	284,232	295,550	307,646	317,755	326,791	331,843
Martin	124,952	127,430	129,415	132,009	135,280	138,329	141,871	142,859	143,914	144,736
Monroe	79,875	79,721	80,850	81,030	80,473	81,336	82,628	80,055	78,729	78,157
Nassau	56,022	58,037	59,452	61,643	63,523	65,478	66,019	68,662	69,745	70,447
Okaloosa	167,880	171,264	174,228	178,036	182,020	186,744	189,766	193,668	197,164	198,884
Okeechobee	35,452	35,998	36,211	36,715	37,377	38,153	37,752	38,821	39,038	39,116
Orange	864,197	906,000	936,749	962,531	989,962	1,021,215	1,050,939	1,087,172	1,109,714	1,123,324
Osceola	166,024	174,107	182,202	197,901	213,723	228,755	237,659	259,521	267,510	273,266
Palm Beach	1,107,053	1,137,532	1,160,977	1,190,653	1,218,508	1,249,598	1,272,335	1,290,600	1,295,586	1,302,077
Pasco	337,348	346,882	354,196	364,900	378,085	392,507	410,758	427,594	435,913	441,188
Pinellas	917,331	923,308	930,602	935,274	941,435	944,966	948,925	947,122	942,911	940,645
Polk	475,268	487,183	498,011	504,381	514,247	531,472	545,064	570,067	583,315	589,784
Putnam	70,029	70,532	70,929	71,481	72,114	73,435	73,897	74,549	74,816	74,903
Saint Johns	118,249	124,613	129,880	135,467	141,216	151,114	159,168	167,553	175,521	179,857
Saint Lucie	189,330	194,062	199,390	205,396	213,614	228,480	243,061	263,319	273,868	279,469
Santa Rosa	115,333	118,605	122,252	125,947	129,842	134,761	137,245	142,004	142,094	142,991
Sarasota	319,980	328,135	335,428	341,784	350,664	360,214	370,123	381,828	388,641	392,262
Seminole	357,714	368,231	380,763	389,549	396,934	405,565	413,937	422,288	426,364	429,244
Sumter	50,539	54,203	58,083	61,979	63,522	67,221	75,660	84,687	90,996	94,125
Suwannee	34,226	35,091	35,744	35,815	37,479	37,863	38,319	39,008	39,816	40,773
Taylor	19,264	19,297	19,594	19,878	20,794	20,977	21,395	21,696	22,721	23,062
Union	13,335	13,473	13,660	13,786	13,793	14,752	15,135	15,160	15,865	16,112
Volusia	436,218	445,676	453,840	462,377	473,185	486,874	497,224	505,317	508,468	511,094
Wakulla	21,917	23,150	23,936	24,340	25,141	25,692	27,193	28,727	29,632	30,575
Walton	39,387	40,990	43,270	46,052	47,472	51,167	54,218	56,199	57,318	58,264
Washington	20,850	21,069	21,516	21,702	21,987	22,534	23,255	23,179	23,876	24,307

Table B. Florida Population by Age Group, 2008

Age Group	2008
< 1	224,519
1-4	898,077
5-9	1,153,024
10-14	1,175,813
15-17	738,078
18-19	481,775
20-24	1,219,961
25-29	1,162,368
30-34	1,138,562
35-39	1,209,419
40-44	1,306,416
45-49	1,373,927
50-54	1,304,080
55-59	1,194,616
60-64	1,055,689
65-69	866,658
70-74	739,132
75-79	652,268
80-84	523,055
85+	479,122
Total	18,896,559

Table C. Florida Population by Gender, 2008

Sex	2008
Male	9,255,976
Female	9,640,583
Total	18,896,559

Table D. Florida Population by Race, Aggregated to White and Non-White, 2008

Race	2008
White	15,208,029
Black	3,147,900
Other Non-white	540,630
Total	18,896,559

List of Reportable Diseases/Conditions in Florida, 2008

Section 381.0031 (1,2), Florida Statutes, provides that "Any practitioner, licensed in Florida to practice medicine, osteopathic medicine, chiropractic, naturopathy, or veterinary medicine, who diagnoses or suspects the existence of a disease of public health significance shall immediately report the fact to the Department of Health." County health departments serve as the Department's representative in this reporting requirement. Furthermore, this Section provides that "Periodically the Department shall issue a list of diseases determined by it to be of public health significance…and shall furnish a copy of said list to the practitioners…". This list reflects diseases and conditions that were reportable in 2008. However, additional updates were made in November, 2008; Annual Morbidity Reports for subsequent years will reflect changes in the list.

Acquired Immune Deficiency Syndrome (AIDS)
Anthrax
Botulism
Brucellosis
California Serogroup Virus (neuroinvasive and non-neuroinvasive)
Campylobacteriosis
Cancer (except non-melanoma skin cancer, and including benign and borderline intracranial and CNS tumors)
Chancroid
Chlamydia
Ciguatera Fish Poisoning (Ciguatera)
Clostridium perfringens, Epsilon Toxin (disease due to)
Congenital Anomalies
Conjunctivitis (in neonates ≤ 14 days old)
Creutzfeldt-Jakob Disease (CJD)
Cryptosporidiosis
Cyclosporiasis
Dengue
Diphtheria
Eastern Equine Encephalitis Virus Disease (neuroinvasive and non-neuroinvasive)
Ehrlichiosis/Anaplasmosis [human granulocytic (HGA), human monocytic (HME), human other or unspecified agent]
Encephalitis, Other (non-arboviral)
Enteric diseases due to:
Escherichia coli, O157:H7
Escherichia coli, Other (known serotypes)
Giardiasis (acute)
Glanders
Gonorrhea
Granuloma Inguinale
Haemophilus influenzae (meningitis and invasive disease)
Hansen's Disease (Leprosy)
Hantavirus Infection
Hemolytic Uremic Syndrome
Hepatitis A
Hepatitis B, C, D, E, and G
Hepatitis B Surface Antigen (HBsAg) Positive in a Pregnant Woman or a Child ≤ 24 months of age
Herpes Simplex Virus (HSV) [in Infants to 6 months of age; anogenital in children ≤ 12 yrs]
Human Immunodeficiency Virus (HIV)
Human Papillomavirus (HPV) [in children ≤ 6 years; anogenital in children ≤ 12 yrs, cancer associated strains]
Influenza Due to Novel or Pandemic Strains
Influenza-associated Pediatric Mortality (in persons aged < 18 yrs)
Lead Poisoning
Legionellosis
Leptospirosis
Listeriosis
Lyme Disease
Lymphogranuloma Venereum (LGV)
Malaria
Measles (Rubeola)
Melioidosis
Meningitis (bacterial, cryptococcal, mycotic)
Meningococcal Disease (includes meningitis and meningococcemia)
Mercury Poisoning
Mumps
Neurotoxic Shellfish Poisoning
Pertussis
Pesticide-Related Illness and Injury
Plague
Poliomyelitis
Psittacosis (Ornithosis)
Q Fever
Rabies (human, animal)
Rabies (possible exposure)
Ricin Toxicity
Rocky Mountain Spotted Fever
Rubella (including congenital)
St. Louis Encephalitis (SLE) Virus Disease (neuroinvasive and non-neuroinvasive)
Salmonellosis
Saxitoxin Poisoning (including paralytic shellfish poisoning)
Severe Acute Respiratory Syndrome-associated *Coronavirus* (SARS-CoV) Disease
Shigellosis
Smallpox
Staphylococcus aureus (with intermediate or full resistance to vancomycin, VISA, VRSA)
Staphylococcus Enterotoxin B
Streptococcal Disease (invasive, Group A)
Streptococcus pneumoniae (invasive disease)
Syphilis
Tetanus
Toxoplasmosis (acute)
Trichinosis
Tuberculosis
Tularemia
Typhoid Fever
Typhus Fever (epidemic and endemic)
Vaccinia Disease
Varicella Mortality
Venezuelan Equine Encephalitis Virus Disease (neuroinvasive and non-neuroinvasive)
Vibriosis (*Vibrio* infections)
Viral Hemorrhagic Fevers (Ebola, Marburg, Lassa, Machupo)
West Nile Virus Disease (neuroinvasive and non-neuroinvasive)
Western Equine Encephalitis Virus Disease (neuroinvasive and non-neuroinvasive)
Yellow Fever
Any disease outbreak
Any grouping or clustering

Selected Florida Department of Health Contacts

Division of Disease Control

Bureau of Epidemiology	(850) 245-4401 (accessible 24/7/365)
Bureau of Immunization	(850) 245-4342
Bureau of HIV/AIDS	(850) 245-4334
Bureau of Sexually Transmitted Disease Prevention and Control	(850) 245-4303
Bureau of Tuberculosis and Refugee Health	(850) 245-4350

Division of Environmental Health

Bureau of Environmental Public Health Medicine	(850) 245-4277

Vaccine-Preventable Diseases in Florida

Millions of people have benefited from vaccines for more than two centuries. The history of vaccines and immunization began in the 1790s with Edward Jenner's creation of the world's first vaccine for smallpox. Before the existence of vaccines, diseases such as smallpox, measles, rubella, diphtheria, polio, and pertussis (whooping cough) were common childhood killers and left many survivors disabled for life. Fortunately, in Florida and the United States these devastating diseases have been almost eliminated due to the widespread use of safe, effective, and affordable vaccines. In fact, smallpox, a disease that has caused countless suffering and death for centuries, was eradicated worldwide through vigorous vaccination programs. There is little else in medicine that can compare to this achievement. With concerted effort, other diseases, such as polio and measles (a disease that infects approximately thirty million children per year, killing approximately 750,000 of them), can similarly be eradicated.

Public health professionals and the World Health Organization (WHO) rank immunizations in the top ten health achievements of the past century. Immunization is as important as the development of safe drinking water and public sanitation practices. Vaccines protect infants, children, and adults from the unnecessary harm and premature death caused by a number of severe communicable diseases. Vaccination is the single most effective communicable disease prevention strategy. Vaccines are also among the most cost-effective medical interventions available, providing huge savings in direct medical care costs, as well as indirect costs such as lost time from work and school. Unlike other areas of healthcare, widespread immunization has effectively leveled racial-ethnic disparities in this country.

Florida's childcare and school entry immunization requirements ensure that students are protected against communicable diseases in settings where such diseases are easily transmitted. When most children in a community are immunized, vulnerable children who are not able to be immunized due to medical reasons are also protected. This concept, known as "herd immunity," is the key to the low levels of vaccine-preventable diseases in Florida, nationally, and in most developed countries. Herd immunity occurs when a large portion of the population (85%–98% depending on the disease) receives vaccine against a disease. Such high immunization coverage rates protect susceptible individuals in a group because, due to immunity in most of the group, transmission of disease cannot be sustained.

An important reason for vaccines' effectiveness in reducing the spread of communicable diseases is the fact that early childhood immunization and childcare/school entry immunization requirements lead to herd immunity. The huge reductions now seen in most of the vaccine-preventable diseases did not occur until states implemented school and childcare immunization entry requirements. Without herd immunity, those who are too young to be immunized, and/or have medical or religious contraindications to immunization, and/or have diseases that cause immunodeficiency, would all be at much greater risk for infections and their sequelae. That is, when fewer children are immunized, then children who cannot be immunized are much more vulnerable to getting infected with a disease.

Section 1003.22 of the Florida Statutes requires immunization for school entry and attendance, and allows for medical (temporary and permanent) or religious exemption from immunizations. The Florida childcare and school entry immunization requirements cover public and private schools, childcare facilities, and family childcare homes. They are in accordance with the recommendations from the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics, the American Academy of Family Physicians, and the American Medical Association. These organizations set the standard of care and practice that healthcare providers, health plans, and insurance companies follow with respect to providing immunizations.

Florida Statutes require specific immunizations for infants and children who attend childcare, family childcare homes, pre-kindergarten and school. Immunization entry requirements for school and childcare settings relate to factors such as whether the disease is communicable in childcare and school settings,

whether the vaccine has been on the market long enough to assess for previously undetected side effects, and whether the vaccine is covered by insurance and health plans.

Immunization safety is of utmost concern to parents, healthcare providers, the public health community, legislators and vaccine manufacturers. Vaccines undergo rigorous and lengthy testing for both safety and efficacy prior to approval by the Food and Drug Administration (FDA). Today's vaccines are much more pure than those produced decades ago. This increased purity has the effect that the total number of antigens (from the vaccines themselves and from other substances in the vaccine preparation) introduced to the body is much less, even as the number of recommended vaccines has increased.

Concerns about vaccine safety have been addressed since the time when vaccines were first introduced. Public health authorities and governmental bodies must balance the right to immunize for the "common good" with individual rights and concerns. The U.S. Supreme Court, in 1905, ruled in Jacobson v. Massachusetts that the need to protect the public health through compulsory smallpox vaccination outweighed the individual's right to privacy. This justification is consistently applied to childcare and school entry immunization requirements, with allowances for religious beliefs and medical conditions.

A robust immunization program has tremendous benefit to individual and public health. Calls for opposing immunizations and/or school entry vaccination requirements, or for providing easier and more numerous ways to obtain exemptions for required vaccinations, are resulting in growing numbers of individuals not fully immunized. This, in turn, is leading to increases in outbreaks of vaccine-preventable disease such as measles and pertussis. This is occurring not just in the United States but in a number of developed countries such as the Netherlands, Great Britain, Switzerland, France, and Israel. In fact, Great Britain has recently had to rescind its 1980's declaration that measles was no longer endemic (that is, children in Great Britain can now contract measles even if no new cases are brought in from the outside). Thus, children and adults in developed nations are increasingly suffering from significant illness, disability, and death due to vaccine-preventable diseases. With the ease and volume of international travel today, Florida is highly vulnerable to the importation of such diseases, especially if the number of children immunized and herd immunity levels decline.

Epidemiology in Florida

The following tables and charts have been compiled from surveillance data collected in Florida over the past seventy years to quantify and visually assess the impact that vaccination practices have had on the burden of disease in this state. Table 1 depicts the precipitous decline in the number of vaccine-preventable disease cases and deaths after widespread use of vaccination. While comparing the number of vaccine-preventable disease cases in 2007 to the number of cases in 1934 is certainly meaningful, this may not be a fair comparison due to the drastic change in Florida's population over time. Florida's population has grown from just under 1.6 million residents in 1934 to over 18.5 million in 2005; a larger population would be expected to have a larger number of cases, all else being equal. To address this, the 2007 population (18,762,014 residents) was used to estimate the number of cases that would have been reported for each year, had the population size been comparable to the 2007 population. This standardized estimate was calculated by dividing the 2007 population by the population for a given historical year to get a population ratio. The number of cases reported for that given year was multiplied by the population ratio. For example, the 2007 population (18,762,014 residents) was 10.1 times the population in 1939 (1,853,660 residents). The number of cases reported in 1939 was multiplied by 10.1 to estimate the number of cases that would have been reported in 1939 if the 1939 population was equal to the 2007 population. Table 2 presents a summary of these standardized estimates of select vaccine-preventable disease cases occurring in census years for 1940 to 2000. These standardized estimations are represented in Charts 1-11 as a dashed line. The actual number of cases reported for each year is represented in the charts as a solid line. Note that as the population size approaches the 2007 population, the dashed line and the solid line converge.

Table 1: Average Vaccine-Preventable Disease Cases and Deaths Pre-Vaccine Compared to Post-Vaccine (2007) in Florida

Disease (Pre-Vaccine Years Averaged)	Pre-Vaccine		Year Vaccine in Wide Use	Post-Vaccine (2007)	
	Cases/ Year	Deaths/ Year		Cases	Deaths
Diphtheria (1936-1945)	319	36	1943	0	0
Measles (1953-1962)	5,723	11	1968	5	0
Mumps (1963-1968)	3,732	1	1967	21	0
Pertussis (1934-1943)	723	58	1941	211	0
Polio (acute and paralytic) (1941-1954)	416	24††	1955	0	0
Rubella* (1966-1969)	1,580	1	1969	0	0
Smallpox (1934-1944)	442	N/A	N/A	0	0
Tetanus (1947-1949)	57	37	1949	5	1
Hepatitis A (1986-1995)	816	6	1995	171	2
Acute hepatitis B (1982-1991)	1,364	44	1986	368	38
H. influenzae meningitis (1980-1989)	378	9	1990	10	0
Total	20,322	32		2,112	41

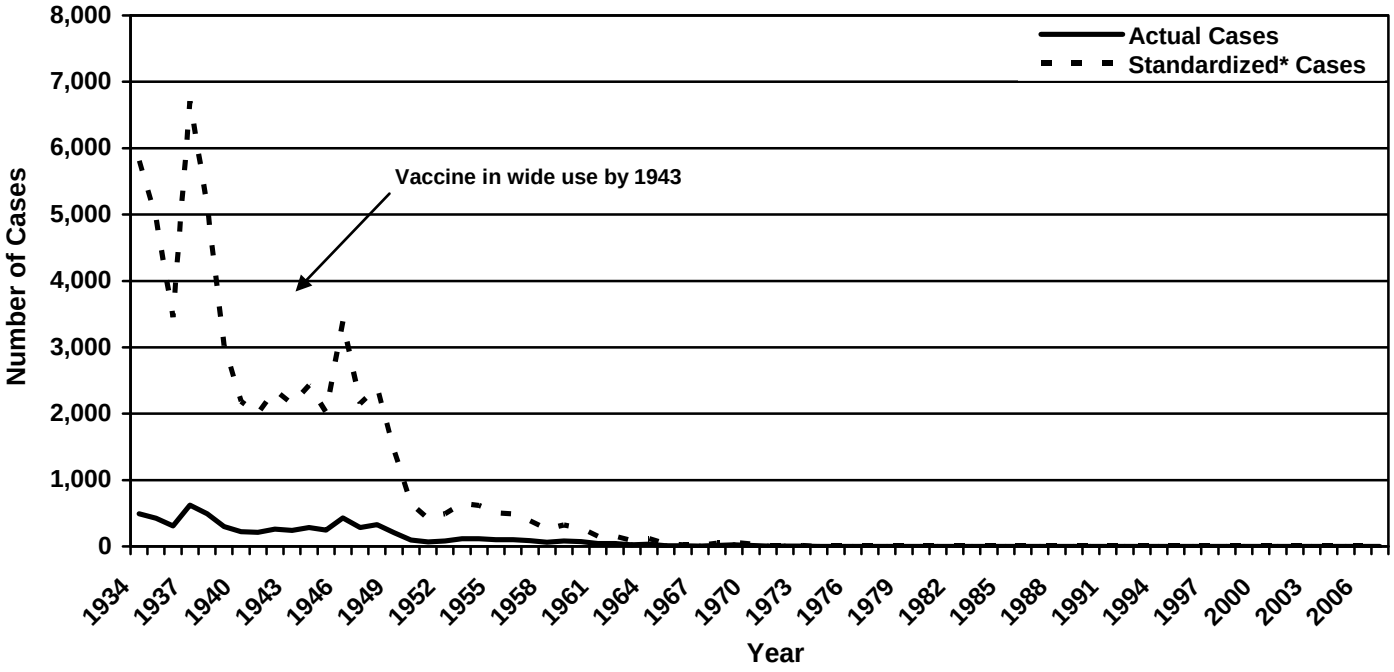
*Congenital Rubella Syndrome cases are not included.
†† Deaths include only those attributable to acute Polio.

Table 2. Summary of Standardized Cases* of Selected Vaccine-Preventable Disease Cases Occurring in Census Years 1940 through 2000

Year	Diphtheria	Measles	Mumps	Pertussis	Polio	Rubella	Smallpox	Tetanus
1940	2,185	22,581	2,596	3,752	323	1,479	69	167
1950	645	16,620	9,657	3,133	3,133	299	0	286
1960	274	15,362	16,476	1,587	244	3,130	0	105
1970	38	4,160	8,309	260	0	9,829	0	44
1980	0	826	373	130	0	208	0	8
1990	1	855	281	84	0	24	0	9
2000	0	2	8	78	0	2	0	1

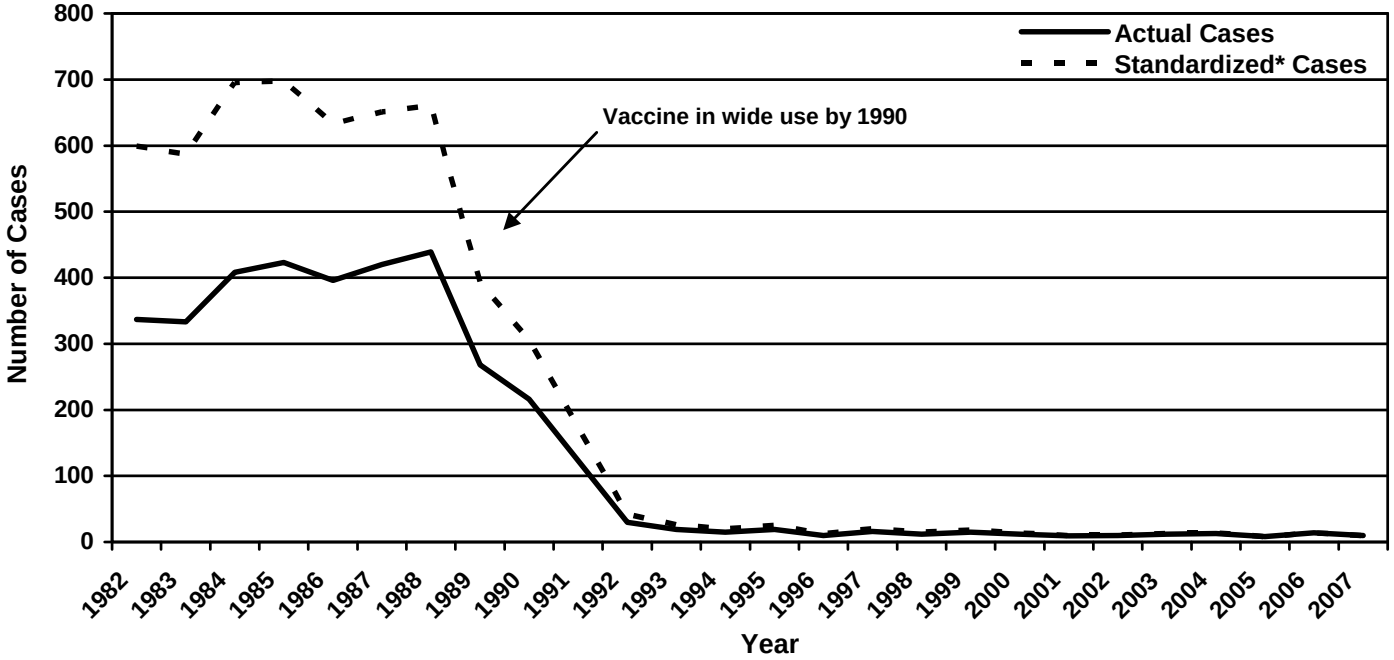
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014 (see text for further explanation).

Reported and Standardized* Diphtheria Cases in Florida, 1934-2007



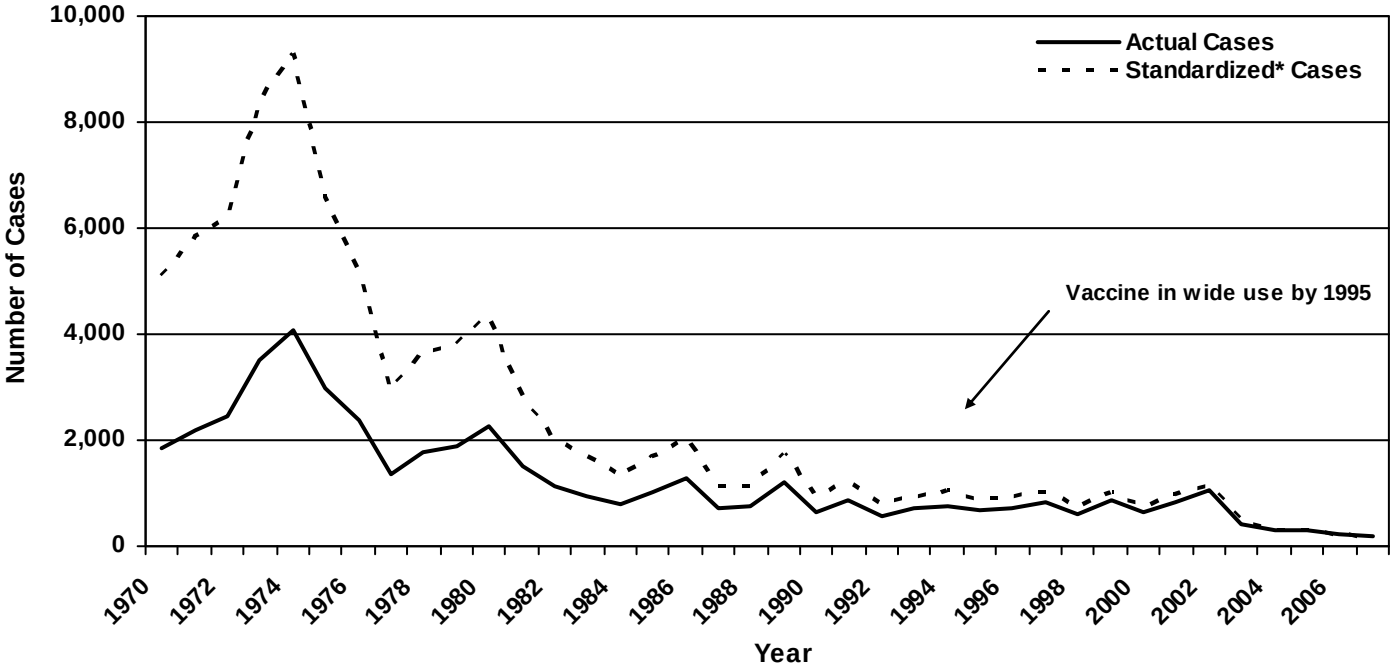
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* *H. influenzae* Meningitis in Florida, 1982-2007



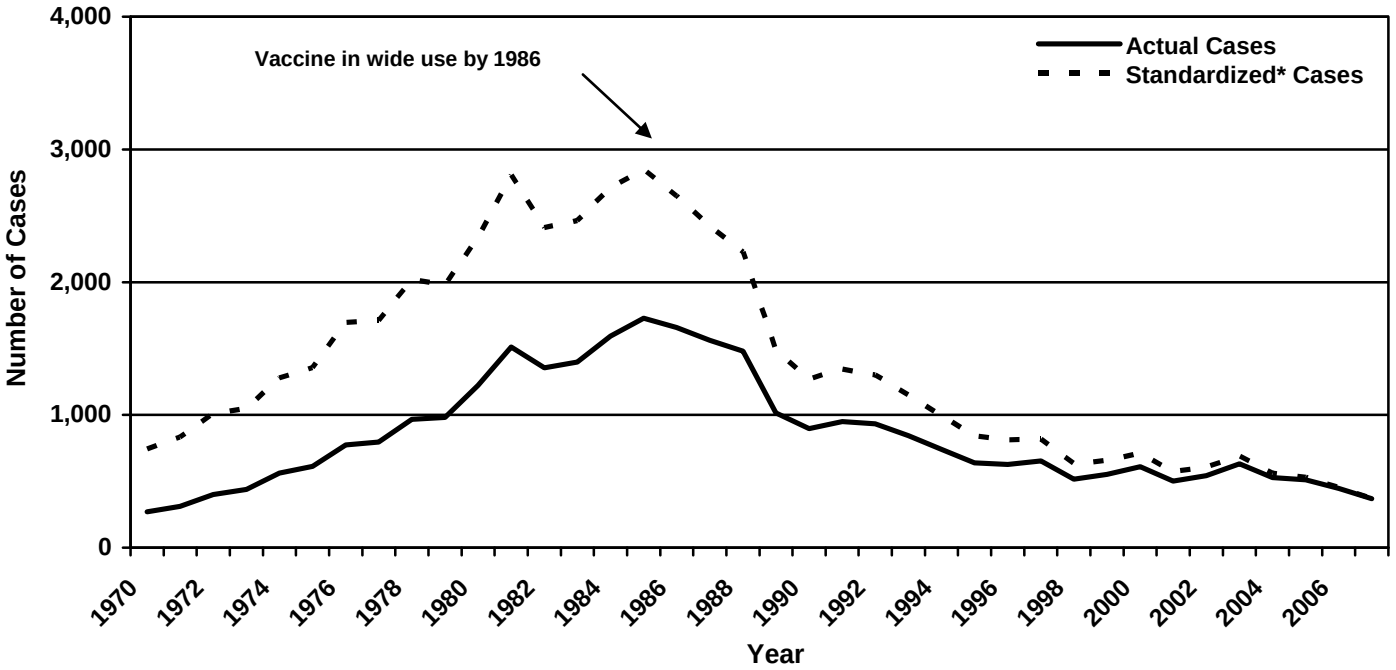
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Hepatitis A Cases in Florida, 1970-2007



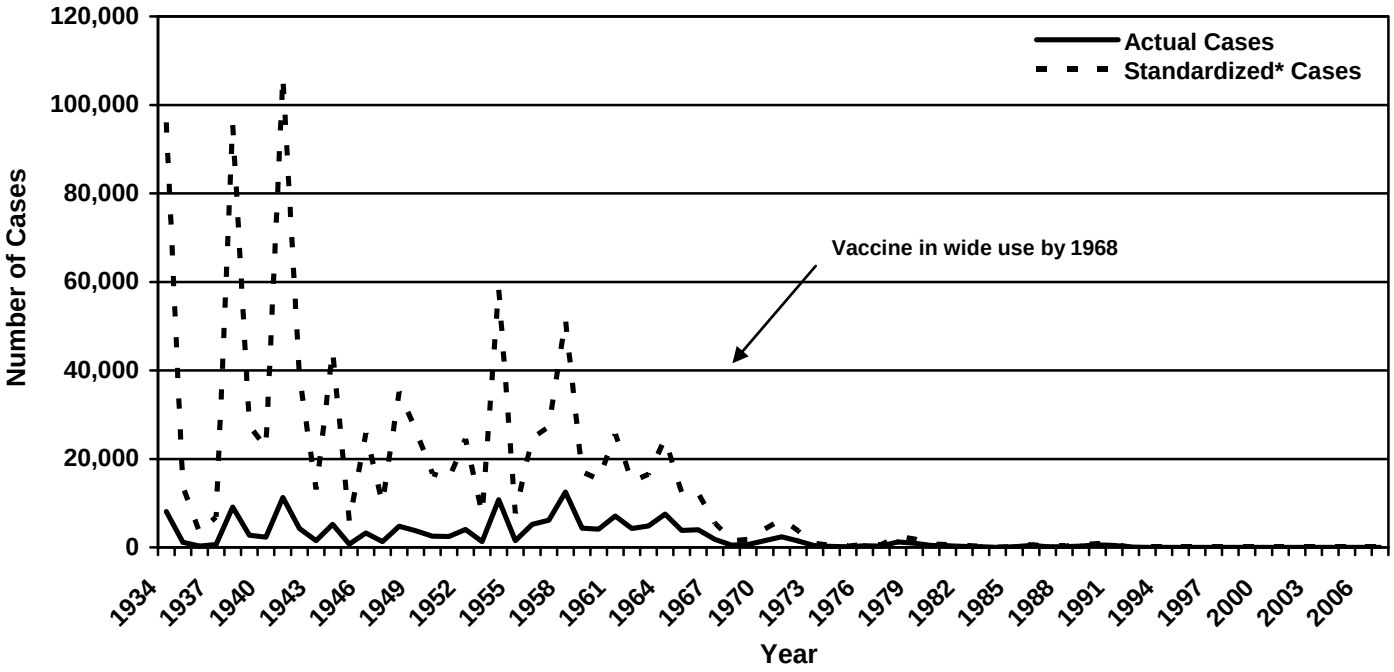
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Hepatitis B (Acute) Cases in Florida, 1970-2007



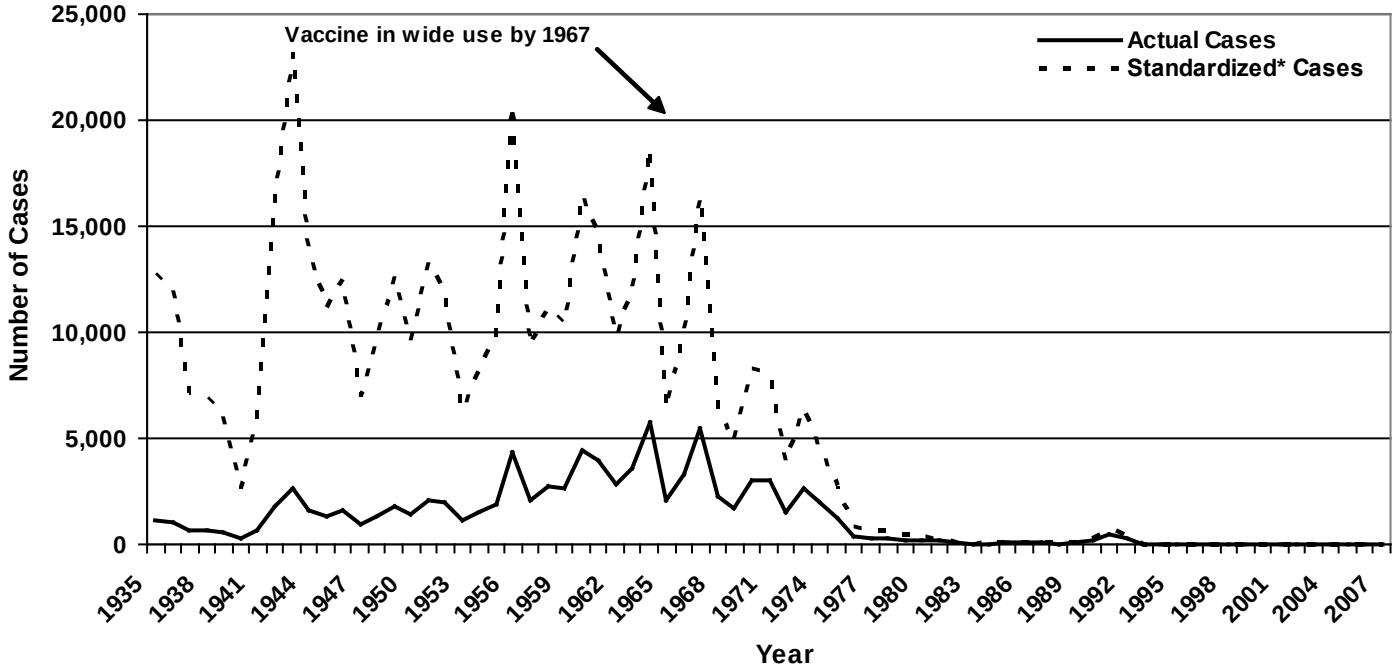
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Measles Cases in Florida, 1934-2007



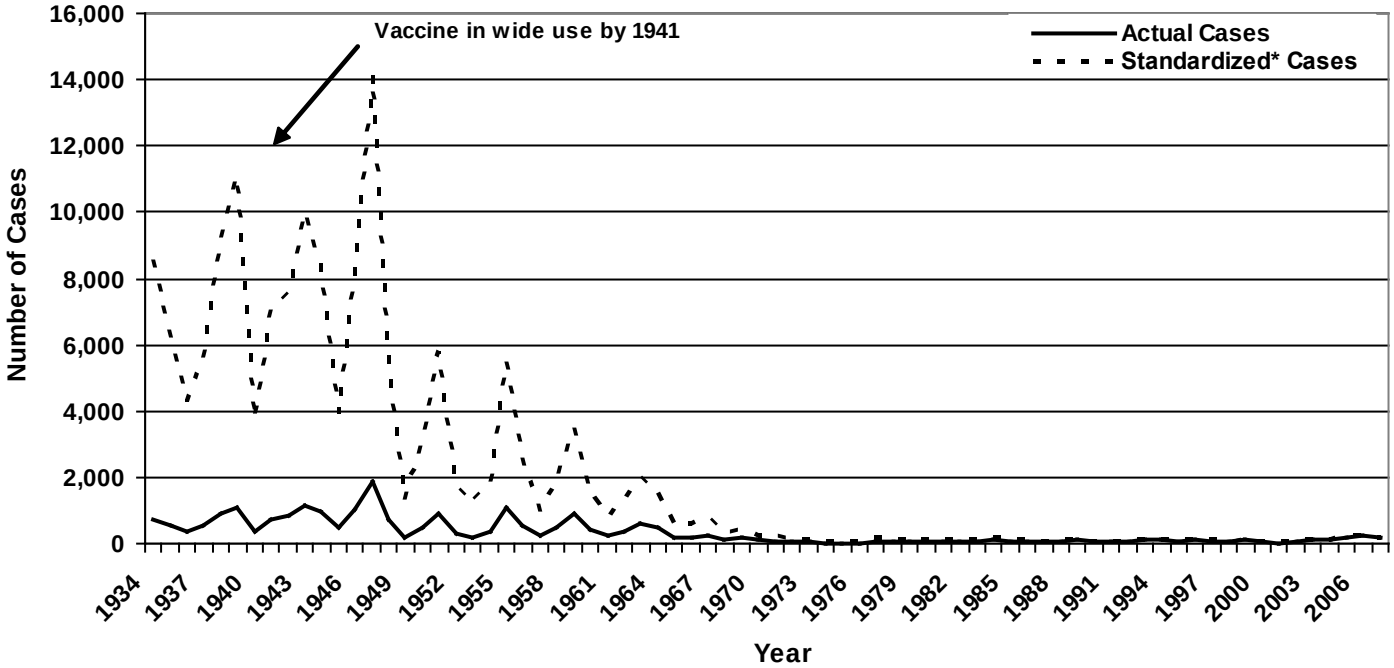
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Mumps Cases in Florida, 1935-2007



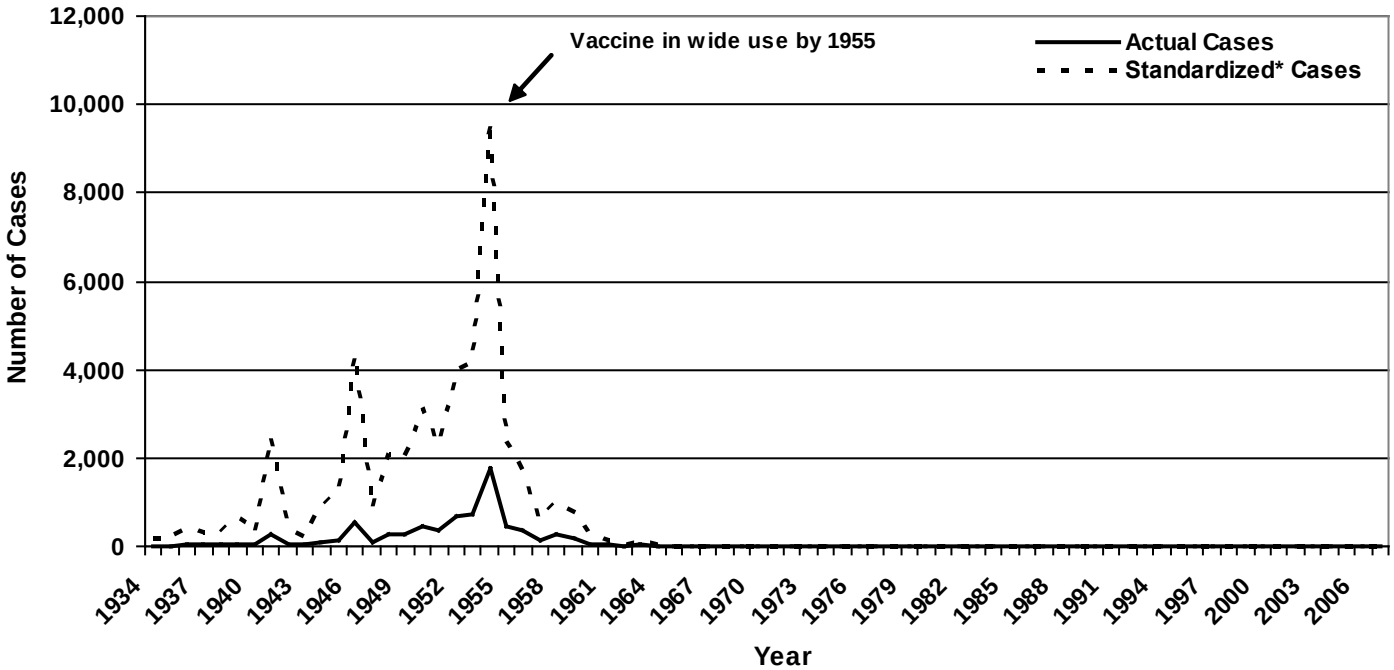
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Pertussis Cases in Florida, 1934-2007



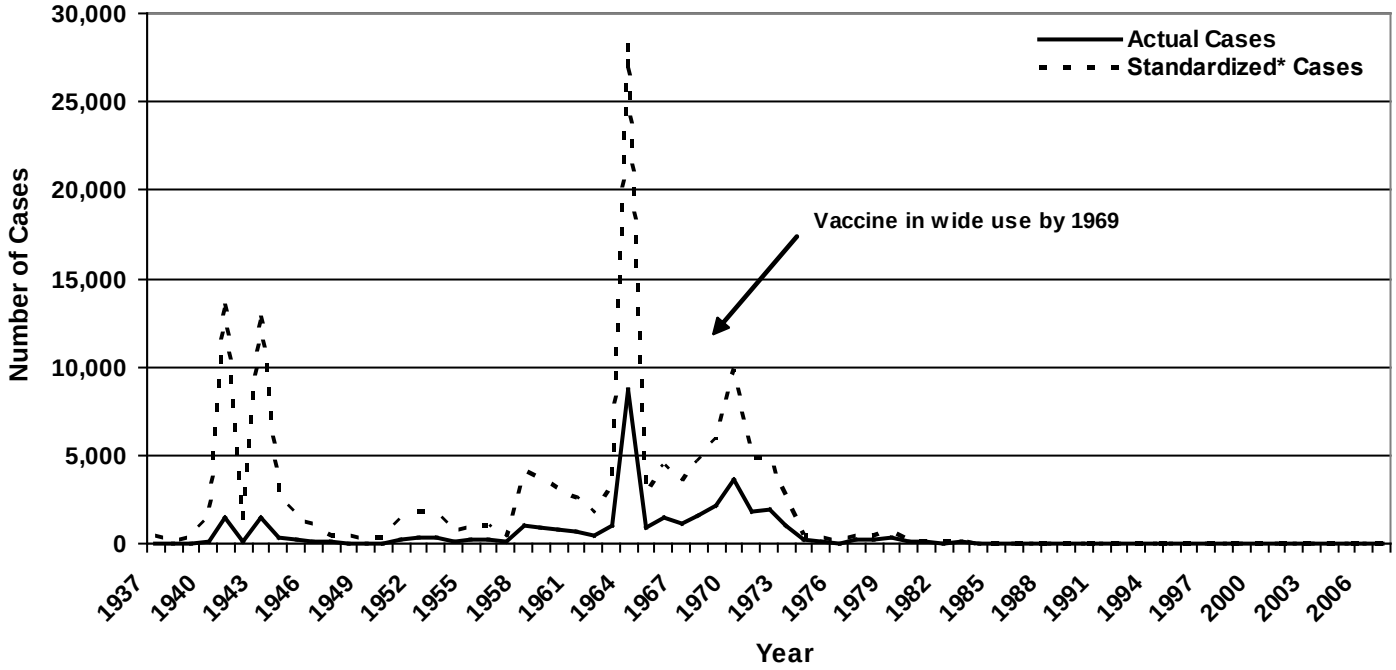
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Polio Cases in Florida, 1934-2007



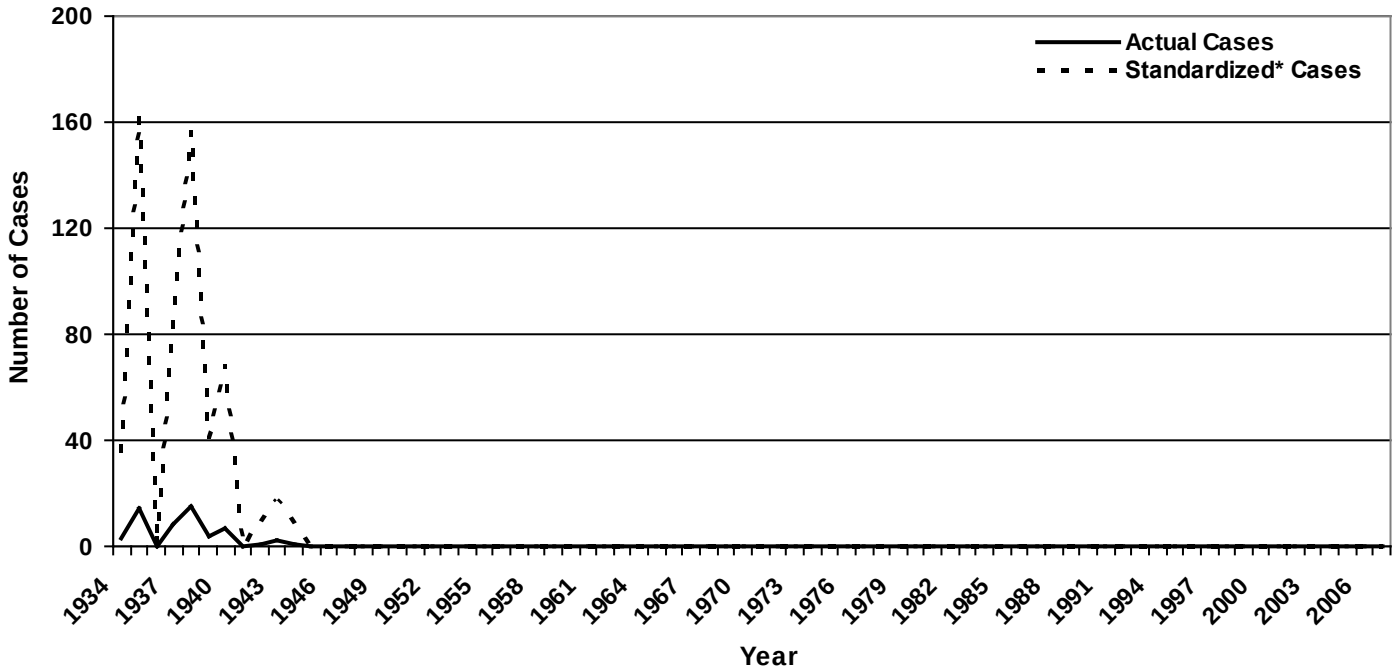
*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Rubella Cases in Florida, 1937-2007

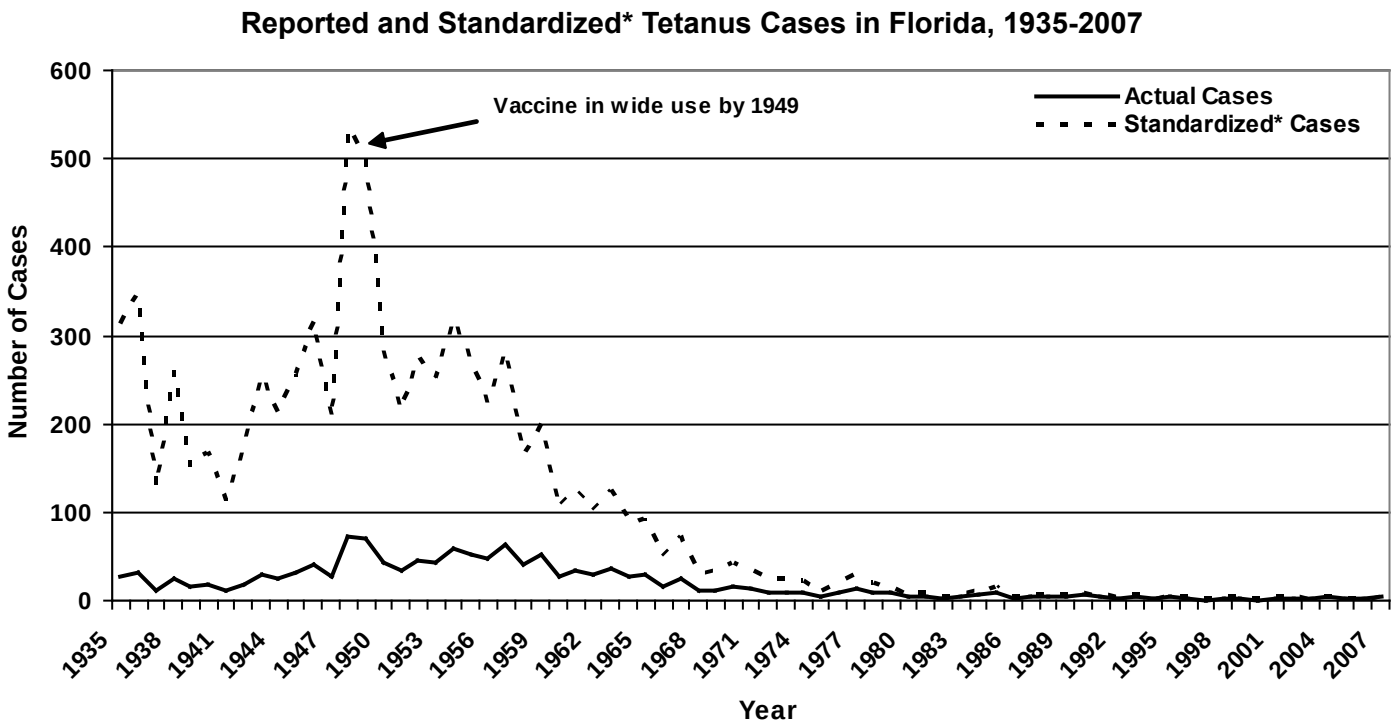


*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.

Reported and Standardized* Smallpox Cases in Florida, 1934-2007



*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.



*Number of cases that would have occurred in Florida each year if Florida had a population of 18,762,014. See the paragraph preceding these charts for a more detailed description of these calculations.