

How to Use *CDC Wonder*

CDC Wonder is a search engine to selected CDC datasets –

<https://wonder.cdc.gov/>

These are “Data Summary Descriptions” of those datasets –

<https://wonder.cdc.gov/DataSets.html>

This is the CDC Wonder homepage –

The screenshot shows the CDC Wonder homepage. At the top is a dark blue navigation bar with the text "CDC WONDER" and links for "FAQ", "Help", "Contact Us", and "WONDER Search". Below this is a search box with the text "WONDER Search" and a "Search" button. To the right of the search box are social media icons for Facebook, Twitter, and a plus sign. Below the search box is a "Topics" sidebar with links for "About CDC WONDER", "What is WONDER?", "Frequently Asked Questions", "Data Use Restrictions", "Data Collections", "Citations", "Republishing WONDER Data", and "What's New?". The main content area has three tabs: "WONDER Systems" (selected), "Topics", and "A-Z Index". Below the tabs is a heading "WONDER Online Databases" and a list of links for "AIDS Public Use Data", "Births", "Cancer Statistics", "Environment", "Mortality", "Population", "Reports and References", and "Other Query Systems".

WONDER online databases utilize a rich ad-hoc query system for the analysis of public health data. Reports and other query systems are also available.

WONDER Systems Topics A-Z Index

WONDER Online Databases

- ▶ [AIDS Public Use Data](#)
- ▶ [Births](#)
- ▶ [Cancer Statistics](#)

Environment

- ▶ [Heat Wave Days May-September](#)
- ▶ [Daily Air Temperatures & Heat Index](#)
- ▶ [Daily Land Surface Temperatures](#)
- ▶ [Daily Fine Particulate Matter](#)
- ▶ [Daily Sunlight](#)
- ▶ [Daily Precipitation](#)

Mortality

Underlying Cause of Death

- ▶ [Detailed Mortality](#)
- ▶ [Compressed Mortality](#)
- ▶ [Multiple cause of death \(Detailed Mortality\)](#)
- ▶ [Infant Deaths \(Linked Birth/Infant Death Records\)](#)

▶ [Online Tuberculosis Information System](#)

Population

- ▶ [Bridged-Race Population \(from NCHS\)](#)
- ▶ [Population Projections \(from Census\)](#)
- ▶ [Sexually Transmitted Disease Morbidity](#)
- ▶ [Vaccine Adverse Event Reporting](#)

Reports and References

- ▶ [Prevention Guidelines \(Archive\)](#)
- ▶ [Scientific Data and Documentation \(Archive\)](#)

Other Query Systems

- ▶ [Healthy People 2010](#)
- ▶ [MMWR Morbidity Tables](#)
- ▶ [MMWR Mortality Tables](#)

▶ Denotes numerical data available to query or download

You'll see that there are three top tabs in it: the default of *Wonder* Systems but also the equally valid choices of entry into CDC Wonder data of *Topics* and *A-Z Index*. Using the tab of *Topics* is my preferred point of entry into CDC Wonder; the main use that I make of the *A – Z Index* is as a shortcut for going to a dataset whose name I know.

This is *Topics* – <https://wonder.cdc.gov/WelcomeT.html>

This is only the *top* of this screen; scroll down to see more –

The screenshot shows the top portion of the CDC WONDER website's 'Topics' page. At the top, there are three navigation tabs: 'WONDER Systems', 'Topics' (which is selected), and 'A-Z Index'. Below the tabs, the page is divided into two main columns. The left column is titled 'Chronic Conditions' and lists various categories such as 'Deaths', 'Disease and Disability', 'Aging Populations', 'Asthma', 'Cancer', 'Diabetes', 'Disabilities', 'Heart Disease', and 'Indicators', each with a list of sub-topics. The right column is titled 'Nationally Notifiable Conditions' and lists categories like 'About', 'Chronic Conditions', 'Environmental', 'Infectious Conditions', 'Weekly Updates', and 'Occupational', also with sub-topics. The page is designed with a clean, professional layout using blue and orange accents.

WONDER Systems | **Topics** | **A-Z Index**

Chronic Conditions

- Deaths**
 - ▶ [Leading Causes of Death](#)
 - ▶ [Mortality - Compressed](#)
 - ▶ [Mortality - Occupational](#)
 - ▶ [Mortality - Multiple Cause of Death](#)
 - ▶ [Mortality - Quarterly Provisional Estimates](#)
 - ▶ [Mortality - Underlying Cause of Death](#)
- Disease and Disability**
 - Aging Populations**
 - ▶ [The State of Aging and Health in America](#)
 - Asthma**
 - ▶ [Asthma Prevalence](#)
 - Cancer**
 - ▶ [Cancer Statistics](#)
 - Diabetes**
 - ▶ [Diabetes Interactive Atlases](#)
 - ▶ [Diabetes Prevalence](#)
 - Disabilities**
 - ▶ [Disabilities](#)
 - Heart Disease**
 - ▶ [Heart Disease and Stroke Atlas](#)
 - Indicators**
 - ▶ [Community Health Status Indicators](#)
 - ▶ [Health Indicators Warehouse](#)
 - ▶ [Chronic Disease Indicators](#)

Nationally Notifiable Conditions

- About**
 - ▶ [National Notifiable Diseases Surveillance System \(NNDSS\)](#)
 - ▶ [Current and Historical Conditions](#)
- Chronic Conditions**
 - ▶ [Cancer Statistics](#)
- Environmental**
 - ▶ [Carbon Monoxide Poisoning](#)
 - ▶ [Childhood Lead Poisoning](#)
- Infectious Conditions**
 - ▶ [Flu View Interactive](#)
 - ▶ [HIV/AIDS Data 1981-2002](#)
 - ▶ [HIV/AIDS Atlas Data 2008+](#)
 - ▶ [STD Cases](#)
 - ▶ [STD Surveillance and Statistics](#)
 - ▶ [Online Tuberculosis Information System](#)
 - ▶ [TB Annual Surveillance Reports](#)
- Weekly Updates**
 - ▶ [State Health Statistics](#)
 - ▶ [Weekly Morbidity Reports: Selected Provisional Notifiable Infectious Diseases Data](#)
 - ▶ [Weekly Mortality Reports: Selected Cities Provisional Influenza 1996 - 10/1/2016](#)
 - ▶ [Weekly Pneumonia and Influenza Mortality](#)
 - ▶ [Weekly Provisional Tables \(print-ready PDF\)](#)
- Occupational**

[web page continues]

This is the *A – Z Index* – <https://wonder.cdc.gov/WelcomeA.html>

This also is only the *top* of this screen; scroll down to see more –

Information or Dataset Name		Host
Adult Blood Lead Epidemiology & Surveillance	ABLES	NIOSH
▶ Air Quality - Fine Particulate Matter	PM2.5	WONDER
▶ Air Temperature and Heat Index Data	NLDAS	WONDER
Assisted Reproductive Technology Reports	ARTS	NCCDPHP
Asthma and Allergies		NIOSH
Asthma Prevalence and Environmental Health	BRFSS	NCEH
▶ Behavioral Risk Factor Surveillance System	BRFSS	NCCDPHP
▶ Births		WONDER
BRFSS Data for Asthma Prevalence and Environmental Health	BRFSS	NCEH
BRFSS Data for Health Risk Behaviors	BRFSS	NCCDPHP
▶ Birth Defects Facts		NCCDPHP
▶ Bridged-Race Population Estimates and more		WONDER
▶ Cancer Query Systems	SEER	NCI
▶ Cancer Registries Invasive Cancer Incidence	USCS	WONDER
Cancer Statistics	USCS	NCCDPHP
▶ Census Bureau's Population Projections		WONDER
▶ Chronic Disease Indicators	CDI	NCCDPHP
▶ Community Health Status Indicators	CHSI	CDC
▶ CMF - Compressed Mortality File	CMF	WONDER
Codes and Classifications	CodeKit	WONDER
▶ Compressed Mortality File	CMF	WONDER

[web page continues]

Therefore CDC Wonder in effect has 3 very different entry points into it depending on what your search is and how you like to work with data.

The term *WONDER* here = “Wide-ranging Online Data for Epidemiologic Research”. Here is what CDC says about it –

CDC WONDER, developed by the Centers for Disease Control and Prevention (CDC), is an integrated information and communication system for public health. Its purposes are:

1. To promote information-driven decision making by placing timely, useful facts in the hands of public health practitioners and researchers, and
2. To provide the general public with access to specific and detailed information from CDC.

With CDC WONDER you can:

- Access statistical research data published by CDC, as well as reference materials, reports and guidelines on health-related topics;
- Query numeric data sets on CDC's computers, via "fill-in-the blank" web pages. Public-use data sets about mortality (deaths), cancer incidence, HIV and AIDS, tuberculosis, vaccinations, natality (births), census data and many other topics are available for query, and the requested data are readily summarized and analyzed, with dynamically calculated statistics, charts and maps.

This is the CDC help guide to using CDC Wonder –

<https://wonder.cdc.gov/wonder/help/main.html#What%20is%20WONDER>

It's a standard online guide, but is too short to be anything other than basic searching for users who don't have a background in public health topics. It's best to have a background or to be willing to research these health topics to get the most out of CDC Wonder.

There are several datasets in CDC Wonder that include this warning –

Data Use Restrictions:

The Public Health Service Act (42 U.S.C. 242m(d)) provides that the data collected by the National Center for Health Statistics (NCHS) may be used only for the purpose for which they were obtained; any effort to determine the identity of any reported cases, or to use the information for any purpose other than for health statistical reporting and analysis, is against the law. Therefore users will:

- Use these data for health statistical reporting and analysis only.
- For sub-national geography, do not present or publish birth or death counts of 9 or fewer or birth or death rates based on counts of nine or fewer (in figures, graphs, maps, tables, etc.).
- Make no attempt to learn the identity of any person or establishment included in these data.
- Make no disclosure or other use of the identity of any person or establishment discovered inadvertently and advise the NCHS Confidentiality Officer of any such discovery.

Before you enter the database you have to click this –

*By clicking the "I Agree" button **I signify that I will abide by the terms of data use stated above** and understand the sanctions and legal penalties for violation of these terms of use.*

I Agree

But in practice sensitive personal information in these datasets is suppressed anyway; example –

Linked Birth / Infant Death Records, 2007-2014 Results

BI Death records

Request Form Results Map Chart About

[Linked Birth / Infant Death Records](#) [Dataset Documentation](#) [Other Data Access](#) [Help for Results](#) [Printing Tips](#) [Help with Exports](#) Save Export Reset

Quick Options More Options Top Notes Citation Query Criteria

Messages:

► **Totals are not available for these results due to suppression constraints. [More Information.](#)**

Some measures are hidden, use Quick or More Options above to restore them.

State ↓	County	Race	Births ↑↓	Death Rate Per 1,000 ↑↓
Oklahoma (40)	Cleveland County, OK (40027)	American Indian or Alaska Native	183	Suppressed
Oklahoma (40)	Oklahoma County, OK (40109)	American Indian or Alaska Native	547	Suppressed
Oklahoma (40)	Tulsa County, OK (40143)	American Indian or Alaska Native	680	Suppressed
Oklahoma (40)	Unidentified Counties, OK (40999)	American Indian or Alaska Native	4,641	Suppressed

Because many CDC Wonder choices link to databases on the main CDC web page I'm going to emphasize those that don't, many of which are very involved.

Let's do a **simple search** that doesn't make too many data option choices: this is a search in "Cancer Statistics Data: Cancer Incidence" by these choices: *Female, Black or African American and White, for Arkansas, Kansas, Missouri, and Oklahoma, 2010 through 2014, age 50 -59, and cancer incidence in the small intestine.*

Here are my *deliberately simplified* search choices –

1. Organize table layout:

Group Results By	Ethnicity
And By	States
And By	Race
And By	None
And By	None

2. Select location:

Click a button to select locations by State, Region, or MSA.

[States](#) [Regions](#) [MSA](#) [States and Puerto Rico](#)

States

- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia

3. Select year and demographics:

Hint: Use Ctrl + Click for multiple selections, or Shift + Click for a range.

Year
2006
2007
2008
2009
2010
2011
2012
2013
2014

Sex
All Sexes
Female
Male

Age Groups
10-14 years
15-19 years
20-24 years
25-29 years
30-34 years
35-39 years
40-44 years
45-49 years
50-54 years
55-59 years
60-64 years
65-69 years

Ethnicity
All Ethnicities
Hispanic
Non-Hispanic
Unknown or Missing

Race
All Races
American Indian or Alaska Native
Asian or Pacific Islander
Black or African American
White
Other Races and Unknown combined

I've used my Control and Shift keys to make multiple choices in the above drilldowns.

4. Select cancers of interest:

Hint: Use Ctrl + Click for multiple selections, or Shift + Click for a range.

Pick between:

Cancer Sites

Leading Cancer Sites

Childhood Cancers

Cancer Sites

- Digestive System
- Esophagus
- Stomach
- Small Intestine**
- Colon and Rectum
- Colon excluding Rectum
- Cecum
- Appendix
- Ascending Colon
- Hepatic Flexure

Here's the data –

Request Form Results Map Chart About

[Cancer Statistics Data](#) [Dataset Documentation](#) [Other Data Access](#) [Help for Results](#) [Printing Tips](#) [Help with Exports](#) [Save](#) [Export](#) [Reset](#)

[Quick Options](#) [More Options](#) [Top](#) [Notes](#) [Citation](#) [Query Criteria](#)

Messages:

- ▶ Totals are not available for these results due to suppression constraints. [More Information](#).
- ▶ Rows with zero Count are hidden. Use Quick Options above to show zero rows.
- ▶ Rows with suppressed Count are hidden. Use Quick Options above to show suppressed rows.

Ethnicity ↓	States	Race	Count ↑↓
Non-Hispanic	Arkansas (05)	White	28
	Kansas (20)	White	26
	Missouri (29)	Black or African American	16
		White	82
	Oklahoma (40)	White	30

You should read all “Messages”. I unclicked “Totals” but got the message about Totals anyway. Where data isn't available we get zeros in our data table which by default aren't shown, but should you want them to show you can choose them, along with additional display choices in “Quick Options”; the same for “suppressed” data.

If you want to add additional data and data display choices there are many of them. But you should consider every choice that you make carefully because every seemingly good choice could create unwanted data and/or data display results. **Spend the most time in “Request form” and think about the data you want and how you want them to be displayed; it’s easy to make mistakes here.** If the data and how they display isn’t what you want, keep returning to “Request form” until you get what you want or at least as much data as the rules of privacy don’t suppress. If you don’t make the right choices your data may not display at all because you haven’t created a field to display them in. *If you don’t get data and don’t see the red font “data suppressed” note in your returned data search you probably have a labeling problem somewhere in “Request Form”. Check everything twice, then again.*

The above example I call a simple search for CDC Wonder. But since some of its links go to simpler tools elsewhere on the CDC website, there are actually simpler types of searches. This is an example of a **quick search**. The following is another cancer data search within “Cancer Statistics Data” but is “SEER Cancer Query Systems: Cancer Prevalence Database: SEER 13” –

The following snips show how I got to this particular SEER 13 tool (there is more than one) –

1.

Cancer Data and Reports

Cancer Data and Reports

United States Cancer Statistics

The official federal statistics on cancer incidence from registries having high-quality data and cancer mortality statistics for 50 states, the District of Columbia and Puerto Rico are produced by the Centers for Disease Control and Prevention (CDC) and the National Cancer Institute (NCI). Data are available for the United States, state and metropolitan areas (MSA) by age group, race, sex, childhood cancer classifications and cancer sites.

- [USCS cancer incidence and mortality data on WONDER](#)
- [United States Cancer Statistics annual reports](#)
- [United States Cancer Statistics: Data Visualizations](#)

Cancer: Surveillance, Epidemiology and End Results

The SEER Cancer Statistics reports, publications, public-use data and analysis software are available at the National Cancer Institute web site.

- [SEER Statistical Publications](#)
- [SEER Cancer Query Systems](#)

I next click “SEER Cancer Query Systems” to get –

2.

Cancer Query Systems

Interactive Tools, Maps, & Graphs	
SEER*Explorer	+
Fast Stats	+
Cancer Statistics Animator	
Cancer Query Systems	–
SEER Incidence Statistics	
U.S. Mortality Statistics	
SEER Survival Statistics	

The Cancer Query Systems (CanQues) are applications that provide access to cancer statistics stored in online databases. These systems do not perform calculations; instead they display reports using databases of statistics generated by other software. Many of these statistics are provided in the [SEER Cancer Statistics Review](#) and [Fast Stats](#). The Cancer Query Systems have a Web-based interface that allows you to retrieve the statistics relevant to your research that you may not have found in other formats. Through this interface, you can:

- select the type of statistic and stratification variables used in the report;
- select the format of the report by choosing from various table formats; and
- extract the statistics, in a delimited format, for further analyses in other software.

The Cancer Query Systems provide access to the following statistical databases:

- [SEER Incidence Statistics](#)
- [U.S. Mortality Statistics](#)
- [SEER Survival Statistics](#)
- [Cancer Prevalence Database](#)

I next click “Cancer Prevalence Database” to get –

3.

Select Database **Step 1 of 3**

- SEER 9 Incidence - AA Rates for White/Black/Other, 1973-2015
- SEER 13 Incidence - AA Rates for Additional Races, 1992-2015
- SEER 18 Incidence - AA Rates for Additional Races, 2000-2015
- SEER 9 Incidence - Crude Rates for White/Black/Other, 1973-2015
- SEER 13 Incidence - Crude Rates for Additional Races, 1992-2015
- SEER 18 Incidence - Crude Rates for Additional Races, 2000-2015
- SEER 9 Incidence - Trends of AA Rates for White/Black/Other, 1973-2015
- SEER 13 Incidence - Trends of AA Rates for Additional Races, 1992-2015
- SEER 18 Incidence - Trends of AA Rates for Additional Races, 2000-2015

Rectangular Snip

I next choose the “SEER 13” radial button and click to get it search engine; I’ve checked my search choices –

4.

Selections Step 2 of 3

Statistic Type: Crude Prevalence Percent (SEER) **Check All**
 Crude Percent Lower 95% CI **Clear**
 Crude Percent Upper 95% CI
 Age-Adjusted Prevalence Percent (US 2000 Std (19 age groups - Census P25-1130))

Race: All Races **Check All**
 White **Clear**
 Black
 Asian/Pacific Islander
 Hispanic (All Races)

Sex: Male and Female **Check All**
 Male **Clear**
 Female

Tumor Inclusion Method: First Malignant Primary Only (Non-reported Assumed Malignant) **Check All**
 First Malignant Tumor per Site and Years since Diagnosis **Clear**
 First Malignant Tumor per Site in the Last 20 Years

Years since Diagnosis: 00 to <05 yrs **Check All**
 05 to <10 yrs **Clear**
 10 to <15 yrs
 15 to <20 yrs

Site: Trachea, mediastinum and other respiratory organs **Check All**
 Bones and Joints **Clear**
 Soft Tissue including Heart
 Skin excluding Basal and Squamous
 Melanoma of the Skin
 Other Non-Epithelial Skin
 Breast
 Female Genital System
 Cervix Uteri

Age at Prevalence: All Ages **Check All**
 00 **Clear**
 01-04
 05-09
 10-14
 15-19
 20-24
 25-29
 30-34

When I click “Continue” I get one more look at my search choices –

Cancer Query System: Cancer Prevalence Database

The Cancer Query System (CanQues) provides access to pre-calculated limited-duration prevalence estimates (percents and counts) and complete US prevalence estimated counts. Estimates are available by cancer site, race, sex, and age group.

Selections from Database: SEER 13 excluding Alaska, 23 Yr Limited Duration Prevalence on 1/1/2015 - Expanded Race/Ethnicity

Statistic Type: Crude Prevalence Percent (SEER)

Race: All Races

Sex: Male

Tumor Inclusion Method: First Malignant Tumor per Site and Years since Diagnosis

Years since Diagnosis: 10 to <15 yrs

Site: Breast

Age at Prevalence: All Ages

Define Results Table

Step 3 of 3

No variables for stratification (all have single selections)

Number of Decimal Places for Statistics:

0.00005

Excludes whole numbers such as Counts

Rectangular Snip

Go Back

View Statistics

And when I finally click “View Statistics” I get my data along with many notes about the data, all of which the user should read to either accept the search as done or to go back and reformulate their search strategy–

SEER 13 excluding Alaska, 23 Yr Limited Duration Prevalence on 1/1/2015 - Expanded Race/Ethnicity

Selections:

Statistic Type = Crude Prevalence Percent (SEER);
Race = All Races;
Sex = Male;
Tumor Inclusion Method = First Malignant Tumor per Site and Years since Diagnosis;
Years since Diagnosis = 10 to <15 yrs;
Site = Breast;
Age at Prevalence = All Ages;

Results:

! 0.00164%

*	Statistic not available by definition.
!	Statistic derived from a limited age range.

Table Variable:

Notes:

- Statistics are provided by the Data Modeling Branch ([DMB](#)), NCI for research purposes only.
- Data Source : November 2017 Submission.
- Prevalence proportions are based on the standard [SEER 13](#) registries, excluding Alaska.
- Populations from January 2015 were based on the average of the July 2014 and July 2015 population estimates from the [US Bureau of Census](#).
- Survival Cohorts are based on:
 - Age at Diagnosis { <60, 60-69, 70+ }
 - Years of Diagnosis { 92-99, 00-04, 05-09, 10-14 }
 - Sex { Male, Female }
 - Race/Ethnicity
 - For All Races, White, Black, and Asian/Pacific Islander: { White, Black, American Indian/Alaskan Native, Asian or Pacific Islander, Other Unspec. 1991+/Unknown }
 - For Hispanic (All races) and Hispanic (White): { White Hispanic, non-White Hispanic, Unknown Hispanic }
 - Sites { Individual Site Recode with Mesothelioma and Kaposi Sarcoma }
- See [Overview of Cancer Prevalence Statistics](#) for more information about prevalence measures and the software used to generate the statistics.

Suggested Citation:

Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov). Prevalence database: "SEER 13 excluding Alaska, 23 Yr L-D Prevalence on 1/1/2015 - Expanded Race/Ethnicity". National Cancer Institute, DCCPS, Surveillance Research Program, Data Modeling Branch, released April 2018, based on the November 2017 SEER data submission.

Alternative Formats:

[Delimited Data](#)

Rectangular Snip

We've done a **simple search** and a **quick search**. But we're *not* going to do this **complicated search** that requires users to either already know much about the process and procedures of inoculation and/or for them to do research prior to formulating and executing their search because I don't know enough about inoculation myself, have never had any customer interest here at ODL in it, and don't have the time to research it now. This is *VAERS (Vaccine Adverse Effects Reporting System)* –

About The Vaccine Adverse Event Reporting System (VAERS)

Request FormResultsMapChartReportAbout

[Dataset Documentation](#)[Other Data Access](#)[Data Use Restrictions](#)[How to Use WONDER](#)

Note: Any use of these data implies consent to abide by the terms of the data use restrictions.

The Vaccine Adverse Event Reporting System (VAERS)

The Vaccine Adverse Event Reporting System (VAERS) database contains information on unverified reports of adverse events (illnesses, health problems and/or symptoms) following immunization with US-licensed vaccines. Reports are accepted from anyone and can be submitted electronically at www.vaers.hhs.gov.

Search Current VAERS Data

The information in this database contains reports received from 1990 to the present. Data can be searched by the following: age, event category, gender, manufacturers, onset interval, recovery status, serious/non-serious category, state/territory, symptoms, vaccine, VAERS ID #, year reported, month reported, year vaccinated and month vaccinated. Click the VAERS Data Search button below to begin your data search.

Data Limitations and Cautions

A major limitation of VAERS data is that VAERS cannot determine if the adverse health event reported was caused by the vaccination. Information on additional limitations of the VAERS data is available at <http://vaers.hhs.gov/data/index>.

[Video: How to Access Data from CDC's VAERS WONDER System](#)

This video demonstrates how to search VAERS data using CDC WONDER. You will also learn about the purpose of VAERS and strengths and limitations of VAERS data.

Watch specific sections of the video:

- [Section 1: Introduction to VAERS](#)
- [Section 2: How to Search VAERS Public Data](#)
- [Section 3: Strengths and Limitations of VAERS Data](#)
- [Section 4: Where to Get More Information](#)

VAERS Data Search

VAERS Report Details*

Look at this long, very long search engine screen and all the variables a user could choose for their search –

About The Vaccine Adverse Event Reporting System (VAERS)

Request Form Results Map Chart Report About

[Dataset Documentation](#) [Other Data Access](#) [Data Use Restrictions](#) [How to Use WONDER](#)

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- [Section 4: Where to Get More Information](#)

* This allows you to search for details on a specific VAERS report by the VAERS ID number.

DISCLAIMER: VAERS staff at CDC and the Food and Drug Administration (FDA) follow up on all serious adverse event reports to obtain additional medical, laboratory, and/or autopsy records to help understand the circumstances. However, VAERS public data do not generally change based on the information obtained during the follow-up process. There are limitations to VAERS data. A report to VAERS does not mean that the vaccine caused the adverse event, only that the adverse event occurred sometime after vaccination. Read more about interpreting VAERS data: [More information](#).

Click [Dataset Documentation](#) for complete information about this dataset.

[web page continues]

VAERS is complex enough that it even has the 13-minute Facebook video about it above. Among the variables users can choose are these selections—

- * adverse effects after prior vaccinations
- * medications at time of vaccination
- * history/allergies
- * symptoms
- * vaccine characteristics: vaccine products, manufacturers, dose, lot #
- * states and all territories
- * event category, such as “Permanent disability”
- * recovery status
- * “serious” status

- * vaccine administered by
- * onset interval
- * days in hospital
- * vaccine purchased by (public, private, military...)

All users should note that each of the search terms is a link, so to get a definition of what “serious” status it above, click the link to get this –

Serious

Select all values or any combination of values to request data limited to the selected criteria.

How?

- See [How do I select items from the list box?](#) for help using the list boxes.

Notes:

- Events are classified as serious when any of the following outcomes are associated with the event: Death, Permanent Disability, Life Threatening, Hospitalized, Existing Hospitalization Prolonged, Congenital Anomaly or Birth Defect. Prior to June 30, 2017, events were classified as serious when any of the following outcomes were associated with the event: Death, Permanent Disability, Life Threatening reaction, or Hospitalization. Note that Congenital Anomaly or Birth Defect was added June 30, 2017.
- When the data are exported, separate columns show both the label and the code for each value. These labels and codes are:

Code	Label
SER	Serious
NSER	Not Serious

Searchers can additionally search by terms using this tool –

6. Search text fields:
Send Help

Limit results to events with words or phrases in any of these text fields.

Enter one or more words per line to find events with **all** words found in line. Show More >>

[Adverse Event Description](#)

[Lab Data](#)

[Current Illness](#)

[Adverse Events After Prior Vaccinations](#)

[Medications At Time Of Vaccination](#)

[History/Allergies](#)

Rectangular!

Next there are 5 date-selection tools: *Select report completed dates*, *Select report received dates*, *Select vaccination dates*, *Select adverse event onset dates*, and *Select death dates*.

Finally there are these data display tools –

12. Other options: Send Help

Export Results (Check box to download results to a file)

Show Totals

Show Zero Values

Precision decimal places

Data Access Timeout minutes

As complex as the search requirements are for VAERS, STD Cases (full name: *Sexually Transmitted Disease Morbidity Data*) is simple. These are my *Request Forms* choices –

- * State
- * United States, D.C. and outlying areas (Guam, Puerto Rico, U.S. Virgin Islands)
- * Total Syphilis
- * 2012, 2013, 2014
- * All genders

After I got my data I sorted it in descending order: California and Texas were #1 and #2 in our nation for number of cases–

Sexually Transmitted Disease Morbidity, 1984-2014 Results

Request Form Results Map Chart About

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State ↓	Count ↑↓	Population ↑↓	Rate Per 100,000 ↑↓
Total	172,405	957,864,393	18.00
California (06)	29,431	114,706,472	25.66
Texas (48)	21,905	78,955,589	27.74
New York (36)	18,614	58,872,515	31.62
Florida (12)	15,608	58,423,288	26.72
Illinois (17)	7,881	38,639,525	20.40
Pennsylvania (42)	4,358	38,311,138	11.38
Ohio (39)	3,466	34,685,841	9.99
Georgia (13)	8,807	29,904,279	29.45
Michigan (26)	2,949	29,674,604	9.94
North Carolina (37)	4,188	29,448,193	14.22
New Jersey (34)	3,023	26,663,268	11.34
Virginia (51)	2,609	24,706,677	10.56
Washington (53)	2,274	20,839,824	10.91
Massachusetts (25)	2,609	20,031,792	13.02
Arizona (04)	3,208	19,806,503	16.20
Indiana (18)	1,549	19,679,138	7.87

[web page continues]

But then I sorted it by Rate per 100,000 –

Sexually Transmitted Disease Morbidity, 1984-2014 Results

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State ↓	Count ↑↓	Population ↑↓	Rate Per 100,000 ↑↓
District of Columbia (11)	1,479	1,925,221	76.82
Louisiana (22)	5,959	13,852,833	43.02
New York (36)	18,614	58,872,515	31.62
Georgia (13)	8,807	29,904,279	29.45
Texas (48)	21,905	78,955,589	27.74
Florida (12)	15,608	58,423,288	26.72
California (06)	29,431	114,706,472	25.66
Maryland (24)	4,079	17,742,191	22.99
Puerto Rico (72)	2,475	10,897,256	22.71
Nevada (32)	1,861	8,339,203	22.32
Illinois (17)	7,881	38,639,525	20.40

[web page continues]

Remember this about the listings of databases in any of the three entry-points into CDC Wonder: the links to go not only to main CDC.gov web pages, but also to the type of search engines that are unique to CDC Wonder –

Births & Deaths

- ▶ [Births](#)
- ▶ [Infant Deaths](#)
- ▶ [Leading Causes of Death](#)
- ▶ [Mortality - Compressed](#)
- ▶ [Mortality - Occupational](#)
- ▶ [Mortality - Multiple Cause of Death](#)
- ▶ [Mortality - Quartly Provisional Estimates](#)
- ▶ [Mortality - Underlying Cause of Death](#)

In the above list “Births,” “Infant deaths,” “Mortality-compressed,” “Mortality-Multiple causes of death” and “Mortality-Underlying cause of death” are all this type of CDC Wonder database –

Linked Birth / Infant Death Records, 2007-2015 Request

Request Form Results Map Chart About

[Linked Birth / Infant Death Records](#) [Dataset Documentation](#) [Other Data Access](#) [Data Use Restrictions](#) [How to Use WONDER](#) Save Reset

Make all desired selections and then click any **Send** button one time to send your request.

1. Organize table layout: Send Help

Group Results By HHS Region **Note:** Group Results By 15 Leading Causes to see the top 15 rankable causes selected from the 130 Cause List. [More information.](#)

And By None

And By None

And By None

And By None

Measures (Default measures always checked and included.)

Deaths Births Death Rate

Title

[+ Additional Rate Options](#) [Help](#)

But “Leading causes of Death” links out to WISQARS, “Mortality-Occupational” links out to NIOSH, and “Mortality –Quarterly Provision Estimates” links out the the National Vital Statistics System.

What are some of the more important databases in CDC Wonder? –

Cancer Statistics

Disease Trends – weekly reports

Mortality – Underlying Cause of Death

National Notifiable Diseases Surveillance System (NNDSS)

Online Tuberculosis Information System

STD Cases

Vaccine Adverse Event Reporting System

But as I’ve said before in my other CDC webinars, if someone has a disease or adverse health condition--such as obesity--that’s *important* to them.

Let's do a **simple search** –

Mortality - Underlying Cause of Death

This is what users have to read first and click “I agree” –

[Request Form](#) [Results](#) [Map](#) [Chart](#) [About](#)

[Dataset Documentation](#) [Other Data Access](#) [Data Use Restrictions](#) [How to Use WONDER](#)

Note: Any use of these data implies consent to abide by the terms of the data use restrictions.

The Underlying Cause of Death database contains mortality and population counts for all U.S. counties. Data are based on death certificates for U.S. residents. Each death certificate identifies a single underlying cause of death and demographic data. The number of deaths, crude death rates or age-adjusted death rates, and 95% confidence intervals and standard errors for death rates can be obtained by place of residence (total U.S., region, state and county), age group (single-year-of age, 5-year age groups, 10-year age groups and infant age groups), race, Hispanic ethnicity, gender, year, cause-of-death (4-digit ICD-10 code or group of codes), injury intent and injury mechanism, drug/alcohol induced causes and urbanization categories. Data are also available for place of death, month and week day of death, and whether an autopsy was performed.

Data Use Restrictions:

The Public Health Service Act (42 U.S.C. 242m(d)) provides that the data collected by the National Center for Health Statistics (NCHS) may be used only for the purpose for which they were obtained; any effort to determine the identity of any reported cases, or to use the information for any purpose other than for health statistical reporting and analysis, is against the law. Therefore users will:

- Use these data for health statistical reporting and analysis only.
- For sub-national geography, do not present or publish death counts of 9 or fewer or death rates based on counts of nine or fewer (in figures, graphs, maps, tables, etc.).
- Make no attempt to learn the identity of any person or establishment included in these data.
- Make no disclosure or other use of the identity of any person or establishment discovered inadvertently and advise the NCHS Confidentiality Officer of any such discovery.

Confidentiality Officer
National Center for Health Statistics
3311 Toledo Road
Hyattsville, MD 20782
Telephone 888-642-4159
Email: nchsconfidentiality@cdc.gov

Sanctions for Violating Rules:

Researchers who violate the terms of the data use restrictions will lose access to WONDER and their sponsors and institutions will be notified. Researchers who are suspected of violating the rules may be prevented from using WONDER until an investigation can be completed. Deliberately making a false statement in any matter within the jurisdiction of any department or agency of the Federal government violates 18 USC 1001 and is punishable by a fine of up to \$10,000 or up to 5 years in prison, or both.

By clicking the "I Agree" button **I signify that I will abide by the terms of data use stated above and understand the sanctions and legal penalties for violation of these terms of use.**

Only after a user accepts these conditions does the search engine load.

Notice these sentence from above: Deliberately making a false statement in any matter within the jurisdiction of any department or agency of the Federal government violates 18 USC 1001 and is punishable by a fine of up to \$10,000 or up to 5 years in prison, or both.

In the following example these are my search choices in *Request Form*; I accept all defaults other than what I change -

- * State, Year
- * All states
- * 55 -64 years
- * Male
- * Black or African American
- * 2014, 2015, 2016
- * Sunday through Saturday

- * Medical facility -inpatient, -outpatient or ER
- * I21 – Acute myocardial infarction

Here's the data –

Underlying Cause of Death, 1999-2016 Results

Request Form Results Map Chart About

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Quick Options More Options Top Notes Citation Query Criteria

Messages:

▶ Totals are not available for these results due to suppression constraints. [More Information.](#)
 ▶ Rows with suppressed Deaths are hidden. Use Quick Options above to show suppressed rows.

State ↓	Year	Deaths ↑↓	Population ↑↓	Crude Rate Per 100,000 ↑↓
Alabama (01)	2014	73	Not Applicable	Not Applicable
	2015	88	Not Applicable	Not Applicable
	2016	83	Not Applicable	Not Applicable
Arizona (04)	2014	16	Not Applicable	Not Applicable
	2015	20	Not Applicable	Not Applicable
	2016	28	Not Applicable	Not Applicable
Arkansas (05)	2014	52	Not Applicable	Not Applicable
	2015	45	Not Applicable	Not Applicable
	2016	43	Not Applicable	Not Applicable
California (06)	2014	160	Not Applicable	Not Applicable
	2015	169	Not Applicable	Not Applicable
	2016	191	Not Applicable	Not Applicable
Colorado (08)	2016	13	Not Applicable	Not Applicable
Connecticut (09)	2014	11	Not Applicable	Not Applicable
	2015	15	Not Applicable	Not Applicable
	2016	18	Not Applicable	Not Applicable
Delaware (10)	2016	10	Not Applicable	Not Applicable

[web page continues through all states; links explain why data aren't applicable for "Population" and "Crude Rate per 100,000"]

Let's do another search, this time for two counties in Texas. Here are my search choices in *Request Form* –

- * County
- * Percent of total deaths
- * Counties: Dallas and Denton
- * All ages
- * All genders
- * Hispanic or Latino
- * All races

- * 2016
- * Accept all defaults in Steps 5 and 6

Underlying Cause of Death, 1999-2016 Results

Request Form Results **Map** Chart About

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County ↓	→ Deaths ↑↓	↕ Population ↑↓	↕ Crude Rate Per 100,000 ↑↓	← % of Total Deaths ↑↓
Dallas County, TX (48113)	2,317	1,026,256	225.8	90.9%
Denton County, TX (48121)	231	154,800	149.2	9.1%
Total	2,548	1,181,056	215.7	100.0%

[Top](#) [Options](#) [Notes](#) [Citation](#) [Query Criteria](#)

Now how about choosing a geography other than “state”? We can choose “Census regions” or “HHS regions”. This is a more complicated search. For this example I’ve chosen all 4 Census regions and these search choices in *Request Form* –

- * Census region
- * Census regions 1, 2, 3, 4
- * Micropolitan, non-core [rural geographies]
- * 75- 84 years of age
- * Female
- * Hispanic
- * All races
- * 2015, 2016
- * Medical facility – inpatient
- * J00-J98 All respiratory diseases

Messages:

- ▶ Selections made to any variable in [Census Regions, HHS Regions, States, 2013 Urbanization] cause equivalent selections in the other variables. [More Information.](#)
- ▶ Totals are not available for these results due to suppression constraints. [More Information.](#)
- ▶ Rows with suppressed Deaths are hidden. Use Quick Options above to show suppressed rows.

Census Region ↓	→ Deaths ↑↓	↕ Population ↑↓	← Crude Rate Per 100,000 ↑↓
Census Region 2: Midwest (CENS-R2)	15	Not Applicable	Not Applicable
Census Region 3: South (CENS-R3)	70	Not Applicable	Not Applicable
Census Region 4: West (CENS-R4)	44	Not Applicable	Not Applicable

Now I'm going to change the "Select cause of death" to the more specific disease of "J09-J18" influenza-pneumonia –

Messages:

- ▶ Selections made to any variable in [Census Regions, HHS Regions, States, 2013 Urbanization] cause equivalent selections in the other variables. [More Information.](#)
- ▶ Rows with suppressed Deaths are hidden, but the Deaths and Population values in those rows are included in the totals. Use Quick Options above to show suppressed rows.

Census Region ↓	→ Deaths ↑↓	↕ Population ↑↓	← Crude Rate Per 100,000 ↑↓
Census Region 3: South (CENS-R3)	22	Not Applicable	Not Applicable
Census Region 4: West (CENS-R4)	16	Not Applicable	Not Applicable
Total	43	Not Applicable	Not Applicable

Now I'm going to change the disease to be even more specific: can I get data for Streptococcus pneumoniae? –

Messages:

- ▶ Selections made to any variable in [Census Regions, HHS Regions, States, 2013 Urbanization] cause equivalent selections in the other variables. [More Information.](#)
- ▶ Rows with suppressed Deaths are hidden, but the Deaths and Population values in those rows are included in the totals. Use Quick Options above to show suppressed rows.

Census Region ↓	→ Deaths ↑↓	↕ Population ↑↓	← Crude Rate Per 100,000 ↑↓
-----------------	-------------	-----------------	-----------------------------

No! That's too specific. So I'll change my search to All categories (of geographies), all ages, all genders, all origins, all races –

Census Region ↓	→ Deaths ↑↓	↕ Population ↑↓	← Crude Rate Per 100,000 ↑↓
Census Region 1: Northeast (CENS-R1)	52	Not Applicable	Not Applicable
Census Region 2: Midwest (CENS-R2)	104	Not Applicable	Not Applicable
Census Region 3: South (CENS-R3)	198	Not Applicable	Not Applicable
Census Region 4: West (CENS-R4)	137	Not Applicable	Not Applicable
Total	491	Not Applicable	Not Applicable

Next I'll change my Race to AIAN –

Messages:			
▶ Rows with suppressed Deaths are hidden, but the Deaths and Population values in those rows are included in the totals. Use Quick Options above to show suppressed rows.			
Census Region ↓	→ Deaths ↑↓	↕ Population ↑↓	← Crude Rate Per 100,000 ↑↓
Census Region 4: West (CENS-R4)	13	Not Applicable	Not Applicable
Total	21	Not Applicable	Not Applicable

Next I'll change genders to Hispanic or Latino Ethnicity, All Races -

Messages:			
▶ Rows with suppressed Deaths are hidden, but the Deaths and Population values in those rows are included in the totals. Use Quick Options above to show suppressed rows.			
Census Region ↓	→ Deaths ↑↓	↕ Population ↑↓	← Crude Rate Per 100,000 ↑↓
Census Region 3: South (CENS-R3)	15	Not Applicable	Not Applicable
Census Region 4: West (CENS-R4)	30	Not Applicable	Not Applicable
Total	50	Not Applicable	Not Applicable

This has been an illustration of how you can change your search strategy to get different data. The limitation that will frustrate you the most is the *suppression* of data to protect privacy. But remember this: CC Wonder is a *primary source data* search whose data is reported to CDC via state health agencies from sources within each state and territory. It's data is as reliable as American FactFinder is for Census data.

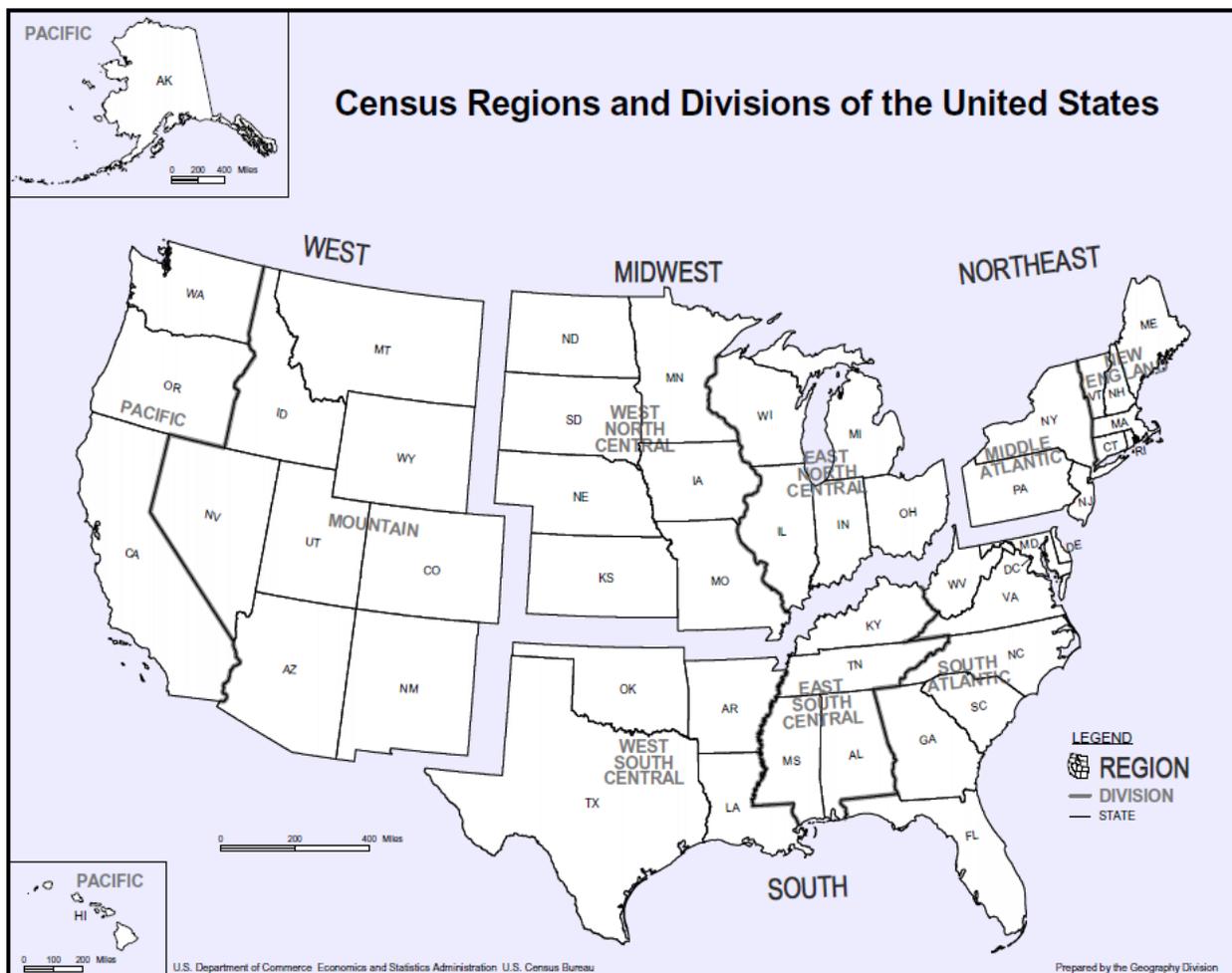
One conclusion that all of you have now reached by now: there are many choices to make or not make in CDC Wonder, and unless you make good choices it won't generate data. That's why a CDC Wonder search isn't a quick and easy search, but it is a *primary source data* search whose data comes from our nation's state and territorial county health departments. This data is as reliable for health data as American FactFinder is for Census data.

Tools and Drilldown choices in CDC Wonder –

The easy way to review these is to simply work through the drilldown choices in “Request Form, but obvious tools are –

- * the expand button in “Select year and month” and “ICD 10 Codes”
- * the drilldown choices in “Group Results By” that includes injury and drug-alcohol cases
- * the choice in “Select location” of States, Census Regions (4) and HHS Regions (10). Here are the maps of Census and HHS regions –

Census Regions –



HHS regions –



- * There are difference in the 2006 and 2013 urbanization definitions as to whether which counties belong to which urban definitions. But if you're searching older data, choose the older definition that better matches the data.
- * In "Select Demographics" be careful of which age groups you choose because the age groups past the basic, default "Ten-Year Age Groups" have data suppression differences.
- * In "Select Cause of Death" there are two expand tools: "Open" and "Open Fully." There are so many differences between them that "Open Fully: can be overwhelming. This is "Open" for F01-F99 –

Browse Search Details

ICD-10 Codes

E00-E09 (Endocrine, nutritional and metabolic diseases)
 F01-F99 (Mental and behavioural disorders)
 + F01-F09 (Organic, including symptomatic, mental disorders)
 + F10-F19 (Mental and behavioural disorders due to psychoactive substance use)
 + F20-F29 (Schizophrenia, schizotypal and delusional disorders)
 + F30-F39 (Mood [affective] disorders)
 + F40-F48 (Neurotic, stress-related and somatoform disorders)
 + F50-F59 (Behavioural syndromes associated with physiological disturbances and physical factors)
 + F60-F69 (Disorders of adult personality and behaviour)
 + F70-F79 (Mental retardation)
 + F80-F89 (Disorders of psychological development)
 + F90-F98 (Behavioural and emotional disorders with onset usually occurring in childhood and adolescence)
 + F99-F99 (Unspecified mental disorder)

Currently selected:
F01-F99 (Mental and behavioural disorders)

Open Open Fully Close Close All

Browse the list by opening and closing items.
Use Ctrl+Click to multiple select, Shift+Click for a range.

+ F90-F98 (Behavioural and emotional disorders with onset usually occurring in childhood and adolescence)
 + F99-F99 (Unspecified mental disorder)

But this is the beginning of “Open Fully” [web page continues for many entries] –

- F01-F99 (Mental and behavioural disorders)
 - F01-F09 (Organic, including symptomatic, mental disorders)
 - F01 (Vascular dementia)
 - F01.0 (Vascular dementia of acute onset)
 - F01.1 (Multi-infarct dementia)
 - F01.2 (Subcortical vascular dementia)
 - F01.3 (Mixed cortical and subcortical vascular dementia)
 - F01.8 (Other vascular dementia)
 - F01.9 (Vascular dementia, unspecified)**
 - F03 (Unspecified dementia)

And here is the ending of “Open Fully” after many entries –

- F98.3 (Pica of infancy and childhood)
- F98.4 (Stereotyped movement disorders)
- F98.5 (Stuttering [stammering])
- F98.6 (Cluttering)
- F98.8 (Other specified behavioural and emotional disorders with onset usually occurring in childhood and adolescence)
- F98.9 (Unspecified behavioural and emotional disorders with onset usually occurring in childhood and adolescence)
- F99-F99 (Unspecified mental disorder)
 - F99 (Mental disorder, not otherwise specified)

This is why I recommend not using “Open Fully”.

- * You need to open and read the “Help” in “Display Options” to understand these options.
- * Anywhere you see the *Send* button you can click it to start a search.
- * Here is the entire “Help” file; print it; read it; understand it –

<https://wonder.cdc.gov/wonder/help/ucd.html>

This is where you find intel about methodology, definitions, and links to more intel about CDC-Wonder. One item to point out is the information about suppression of data; this is the entire file –

What are the Assurance of Confidentiality constraints for the data?

Data reports for years 1989 and later must meet the [NCHS data use restrictions](#). Vital statistics data are suppressed due to confidentiality constraints, in order to protect personal privacy. The term "Suppressed" replaces sub-national death counts, births counts, death rates and associated confidence intervals and standard errors, as well as corresponding population figures, when the figure represents zero to nine (0-9) persons.

As of December 12, 2011, additional privacy constraints apply to infant mortality statistics representing infant age groups and live births as the denominator population. When an infant mortality measure represents fewer than ten (0-9) infant deaths, all corresponding live birth population denominator figures are suppressed. When the infant mortality measure represents ten to nineteen (10-19) infant deaths, the number of deaths and live births are shown, but rates and associated measures are not shown. Race and Hispanic origin data are not available in this online database for infant age groups. However, race and Hispanic origin data are available for persons under one year of age in the other age groups, which use population estimates as population denominator data. Race and Hispanic origin detail for infant mortality statistics are available in the [Linked Birth / Infant Death Records](#) data collections.

Prior to May 23, 2011, data cells in tables for year 1989 and later years were suppressed only for single county-level data, when the data represented five or fewer (1-5) deaths for a time period less than three years, and the county's total population in the April 1st, 2000 Census was fewer than one hundred thousand (100,000) persons. Prior to December 12, 2011, the same constraints applied to infant mortality statistics and all-ages mortality statistics.

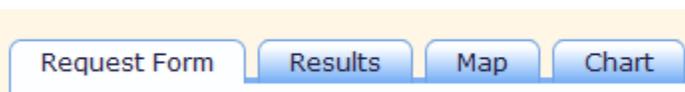
Totals and sub-totals are suppressed when the value falls within scope of the suppression criteria, or when the summary value includes a single suppressed figure, in order to prevent the inadvertent disclosure of suppressed values.

The confidentiality constraints and use of the "Unreliable" flag are established by the original data providers. For more information, please contact the [data providers](#).

One thing to take away from the above is that if you want data at the geo level of the entire nation, all races, all age groups, all everything, it's not such a problem, but if you want data for small geographies and sub-populations, you've got problems.

- * **Remember to click the "Reset" button on the upper-right screen of the Request, Results, Map, or Chart web page to begin a new search.** It's important to completely clear your prior search.

We need to examine these two data display choices that you been seeing beside *Request Form*: MAP and CHART –



For both *Map* and *Chart* do your basic search first, then choose "Map"

or “Chart”. The following is a simple search in *OTIS (Online Tuberculosis Information System)* –

- * State
- * 2012 – 2016 (column title reads 1993 – 2016)
- * Alabama, Florida, Georgia, Mississippi, North and South Carolina
- * Age group 45 – 64 years
- * Revised occupation – Health Care
- * Bridged race/ethnicity – All values
- * Step 4 – accept all defaults
- * Step 5 – accept all defaults except “Previous TB – No” and “Verification Criteria – Positive culture and Clinical case definition”
- * Step 6 and 7 – accept all defaults

OTIS TB Data 1993-2016 Results

State ↓	Cases ↑↓	Percent of Total ↑↓
Florida	29	49.15%
Georgia	13	22.03%
North Carolina	7	11.86%
Total	59	100.00%

Now click the top-screen *Map* tab for this –

OTIS TB Data 1993-2016 Maps

Request Form Results **Map** Chart About

[Online Tuberculosis Information System](#) [Dataset Documentation](#) [Other Data Access](#) [Help for Maps](#) [Printing Tips](#)

[Notes](#) [Citation](#) [Query Criteria](#)

Messages:
▶ Use 'Map Options' above to create other maps; this is the default map.

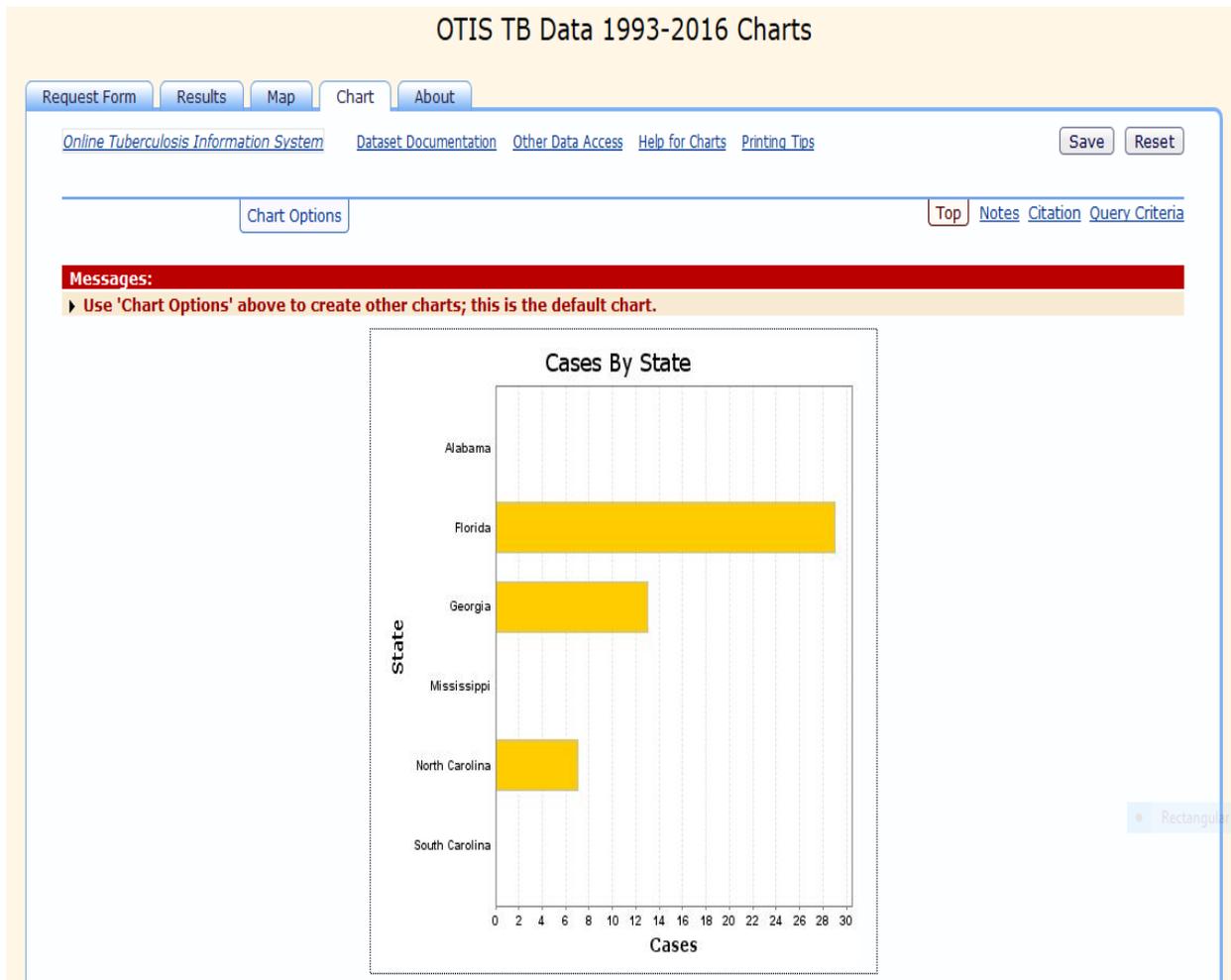
Cases for The United States

Legend:

- Suppressed value
- 7
- 13
- 29
- Other
- Background

Rectangular

Then click the top *Chart* tab for this –



Steve Beleu, Oklahoma Dept. of Libraries
May 10, 2018