TRACKING 270

PORTAL TERMINOLOGY AND DATA DETAILS

Hello and welcome to Tracking 270: Portal Terminology and Data Details. This tutorial provides definitions and gives examples of epidemiological terms, such as count, crude rates, age-adjusted rates, suppression, and confidence intervals to help you use the data portal.

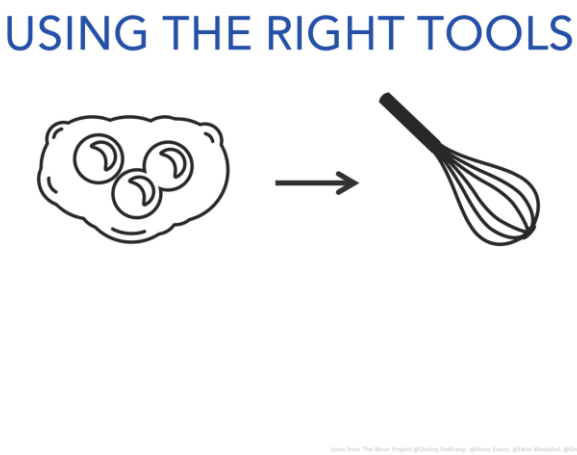
At the end of this tutorial you will be able to:

- Define epidemiological terms related to the Tracking portal
- Locate the Tracking glossary
- Locate data details

This tutorial builds on skills developed in Tracking 201, 210, and 250. Let's get started!

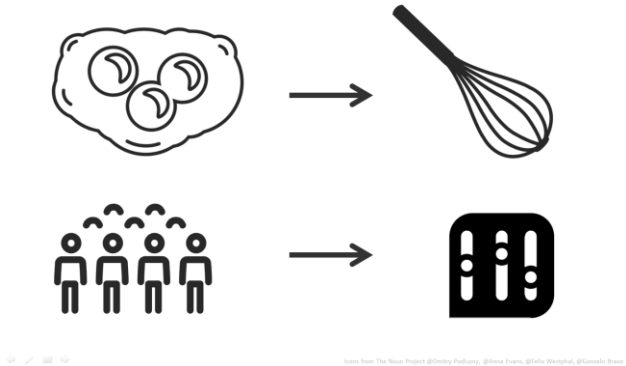
TERMS

The Tracking website and data portal contain a number of terms that may be unfamiliar to you. Most of these terms are related to a field of science called **epidemiology**. Epidemiology is the study of health in populations or groups. Just like any special area of science, epidemiology has a number of specific terms and concepts which are important to understand.



Think of these concepts as the right tools for the job. If you were making an omelet, the right tool would be a whisk.

USING THE RIGHT TOOLS



When you're trying to understand trends in the health of large groups of people, the right tool might be an age-adjusted rate or a confidence interval. Let's take a look at a few of these terms now!

COUNT

TALLY OF A DISEASE IN A POPULATION OR AREA

Count refers to the number of diseases that occur in a population or an area. If there are 231 cases of lung and bronchus cancer in a county—regardless of the size of that county or the number of people who live there—that is the **count**.

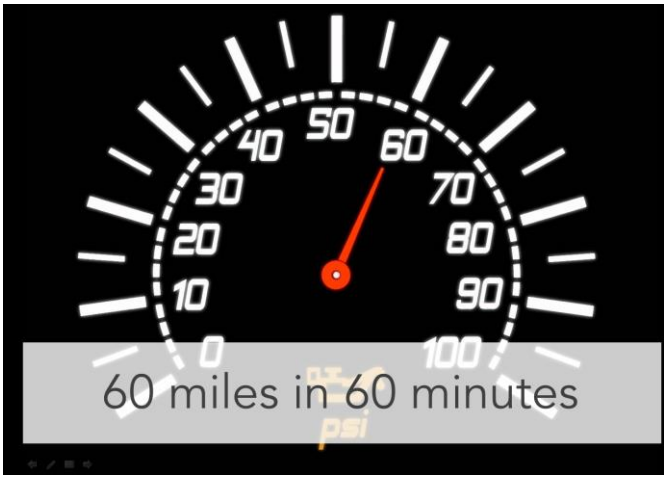
COUNT

TALLY OF A DISEASE IN A POPULATION OR AREA

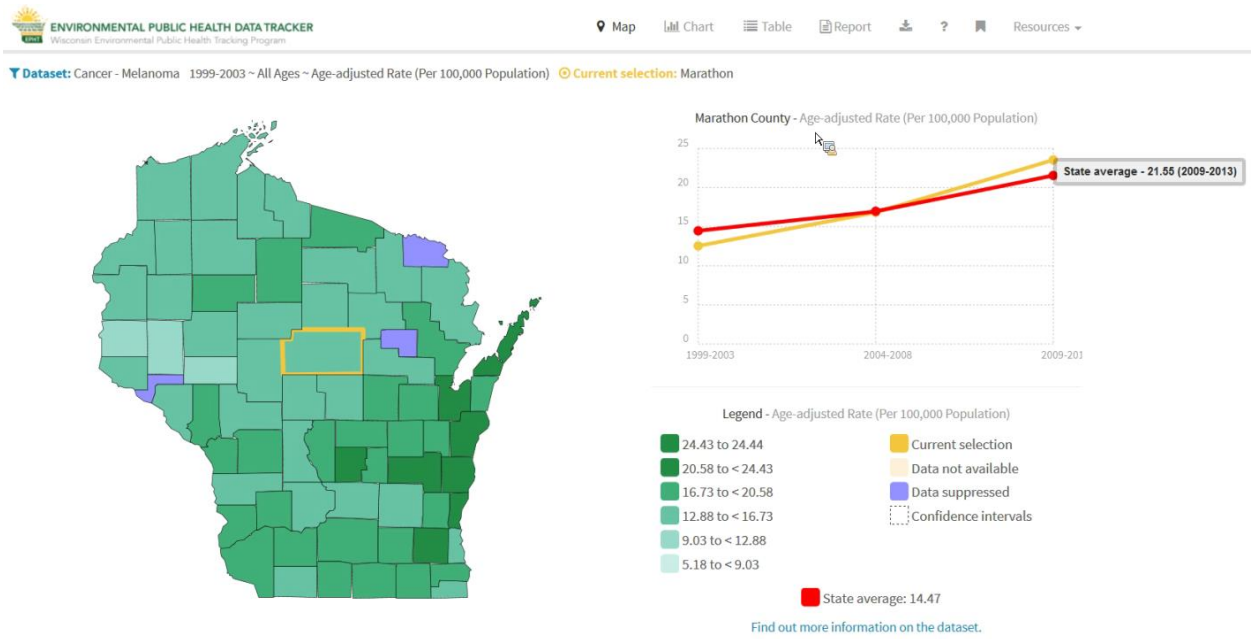
RATES

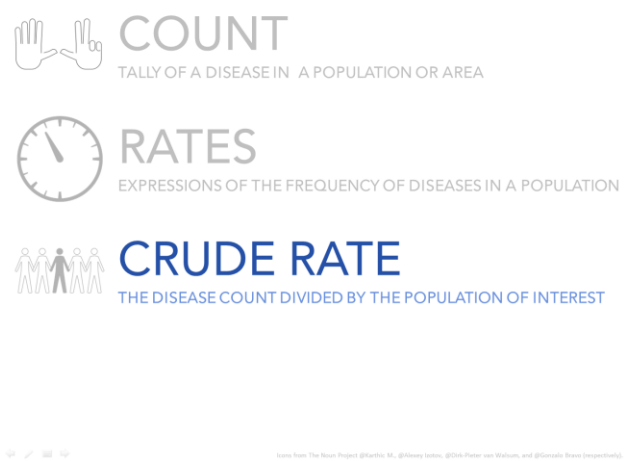
EXPRESSIONS OF THE FREQUENCY OF DISEASES IN A POPULATION

Rates are a major tool in an epidemiologist's toolbox. It makes sense if you think about it. People don't get sick all at once—instead, they get sick over time. Epidemiologists might want to know *how fast*—or how *often* in a given time period—people are getting sick. It's similar to your car's speedometer.



When your speedometer reads 60mph it means you can expect to go 60 miles in 60 minutes—if you don't change your speed! A disease rate says that we expect a certain number of cases of a disease to occur in a given time period and a given population size—given the current state of things. Tracking rates over time allows epidemiologists to know if diseases are becoming *more*—or *less*—widespread. For example, rates of melanoma in Wisconsin have been going up over the last several years. If you look at the data in the portal, you'll see that the age-adjusted state rate for 1999-2003 was 14.47 per 100,000 and for 2009-2013 it was 21.55 per 100,000.





When it comes to rates, the simplest version is the **crude rate**. Crude rates involve **counts**, which we have talked about already. The crude rate is basically a fraction where the **count** is the numerator and the population – in a given time period – is the denominator. Let's take a hypothetical example: If there were 100 cases of lung cancer in Rogers County in 2015 and the population of Rogers County is 100,000 people that year, then the crude rate of lung cancer is 100 per 100,000 people or 10 per 10,000 people and so on. Crude rates are usually given using a common denominator (e.g., 100,000) because that allows us to compare across groups and see if there are differences in rates of disease across regions and cancer types. For instance, if Nelson County has a crude lung cancer rate of 200 per 100,000 people, we know their crude rate is twice that of Rogers County.

Rogers County

100 Cases of Lung Cancer

100,000 People

=

10 per 10,000

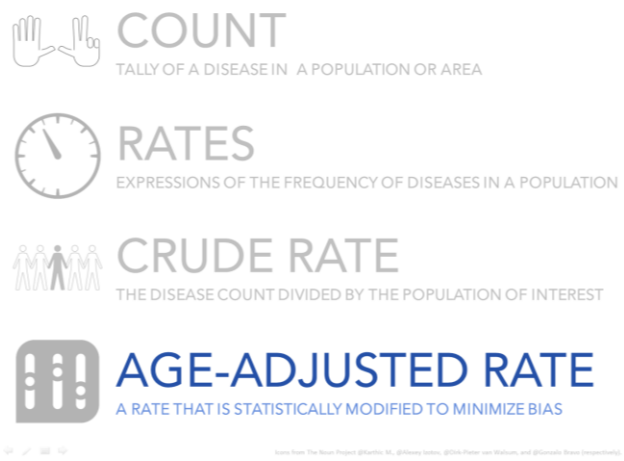
Nelson County

200 Cases of Lung Cancer

100,000 People

=

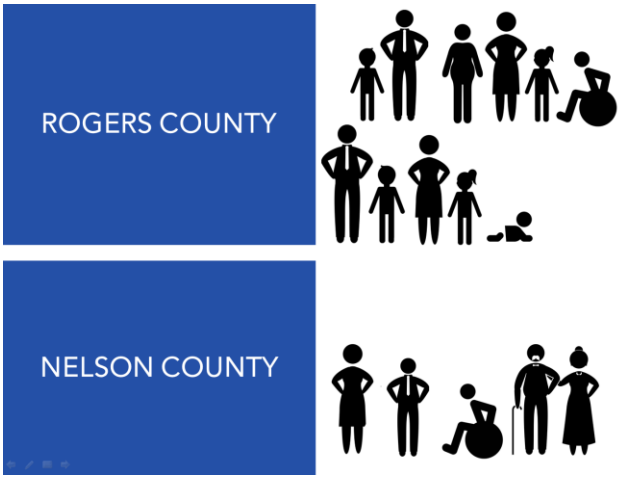
200 per 100,000



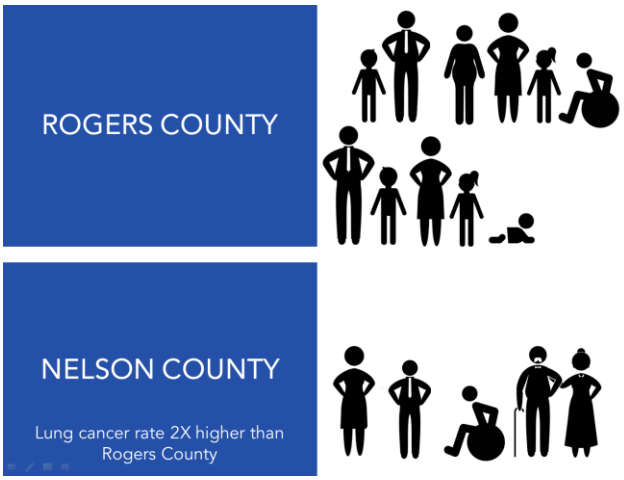
Age-adjusted rates are like crude rates only they are *adjusted* for age—hence the name! What does it mean to be *adjusted for age*? It means that the influence of age is factored out – or statistically removed. That still sounds complicated, I know! Let me try to explain a little further!

You probably know without realizing it that many diseases are related to a person's age. The older a person gets, the more likely they are to get diabetes, high blood pressure, or cancer, for example. Conversely, some diseases, like chicken pox or asthma, are more common among children. So, let's pretend we want to compare across Rogers and Nelson Counties again.

Rogers County has a growing population and many children.

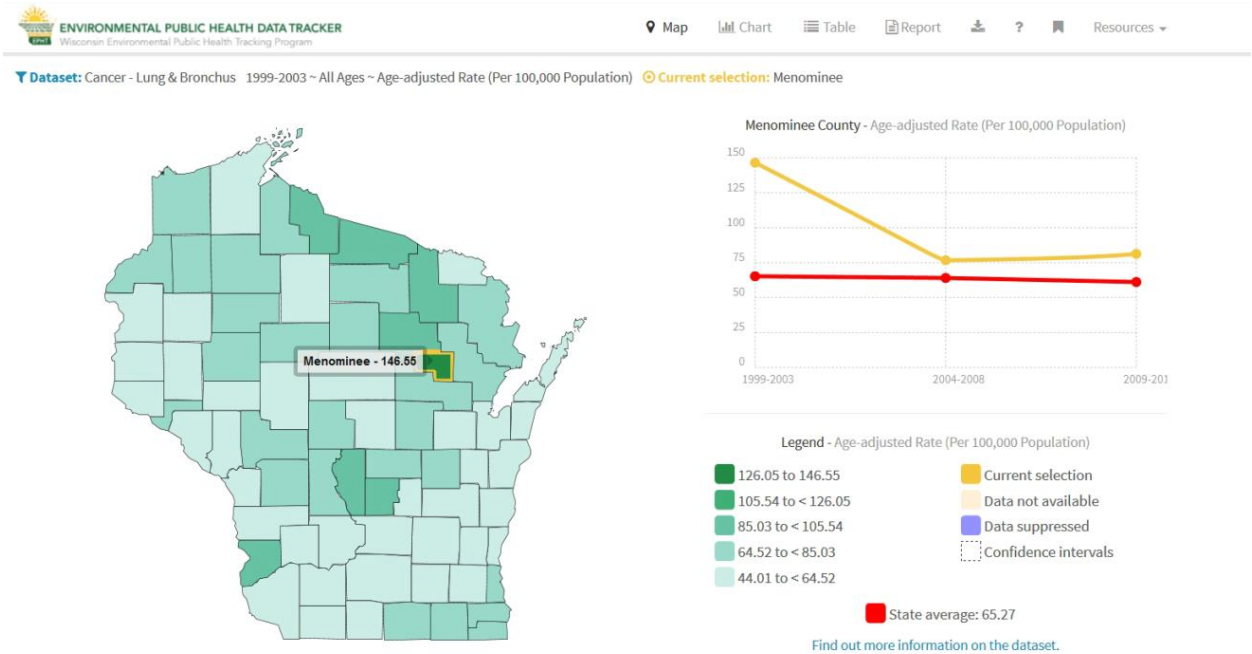


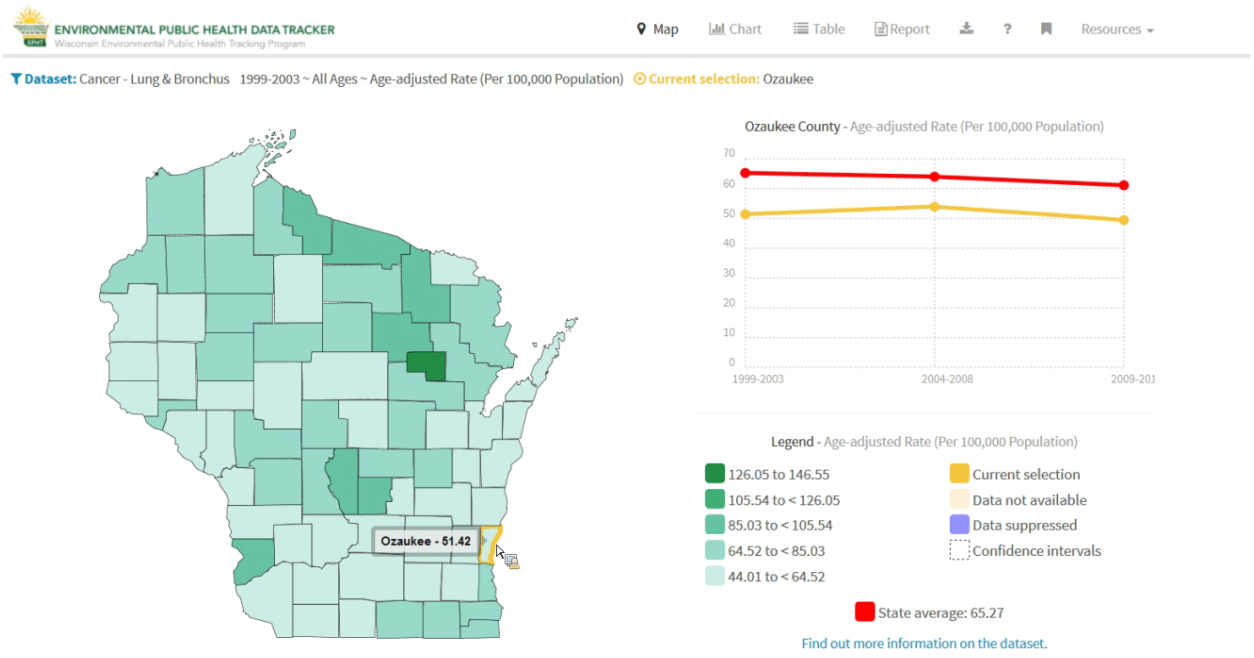
Nelson County is a place where people move to retire. If I told you the crude rate for lung cancer in Nelson County is twice as high as the rate in Rogers County, would you be surprised?



You shouldn't be! Those retirees are more likely to get cancer simply because they are older. The rate of chicken pox in Nelson County is probably a lot lower than in Rogers County as well! That is *precisely* why we adjust rates for age. It is a way of making the groups statistically comparable. If, after age-adjustment, Nelson County *still* has a higher rate of lung cancer, we need be concerned about what is going on in Nelson County.

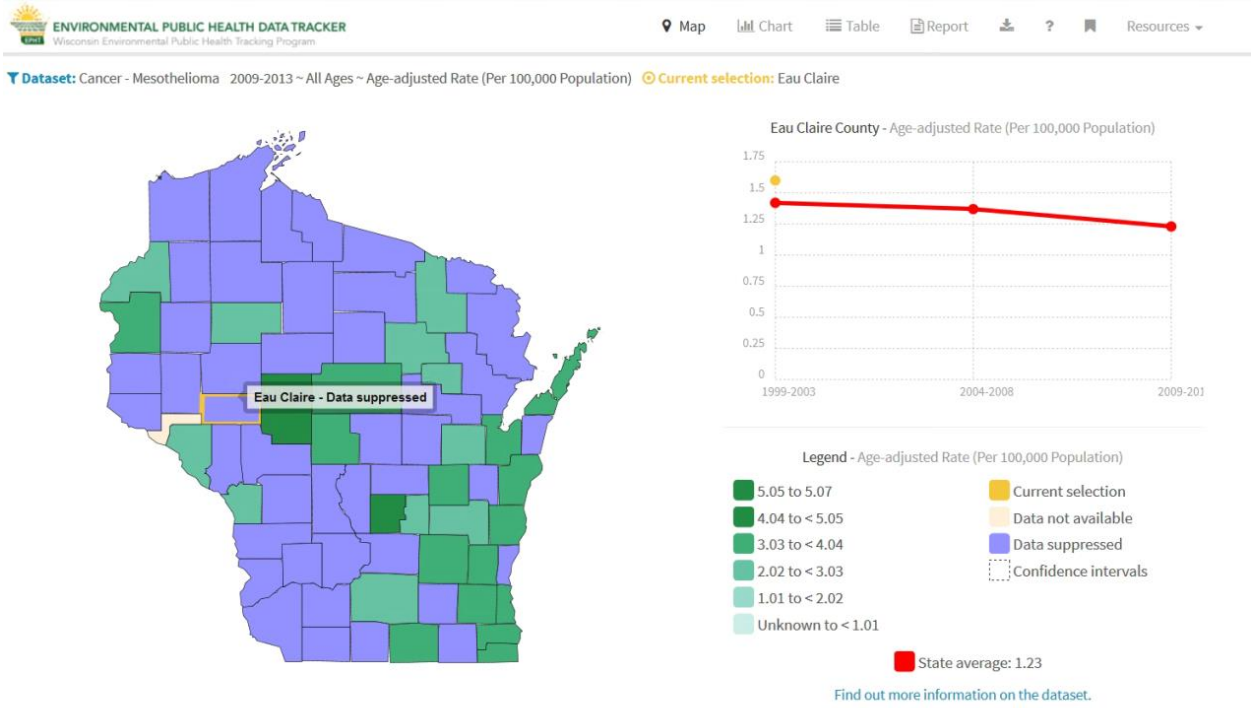
Using a real example from the tracking portal, if we look at the period from 1999-2003, we see that Menominee County has an age-adjusted lung and bronchus cancer rate of 146.55 per 100,000 while Ozaukee has a rate of 51.42. There might be many reasons for these differences, but we can be confident with age-adjustment that *the differences in the ages of the populations* in those two counties are not the reason for the difference.



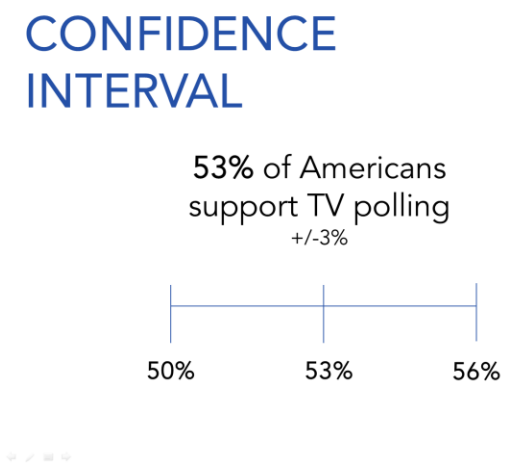


Both crude and age-adjusted rates are known as *estimates*. That just means that they are estimated based on the available information. But we want our estimates to be the best they can be, right? You know that the weather app on your smartphone is only *estimating* what the temperature will be that day, and that's okay, but you don't want that estimate to be far off. If the weather app says it's 100° and sunny and your teeth are chattering from the cold on your walk to work, that's a lousy estimate. In epidemiology, when numbers are too small, rates cannot be accurately estimated. As such, we use something called **suppression**. When the disease **count** is less than five in a given area and time period, we *suppress*—or don't reveal—that information and don't calculate any kind of rates based on it. Another reason to suppress small counts is to protect confidentiality.

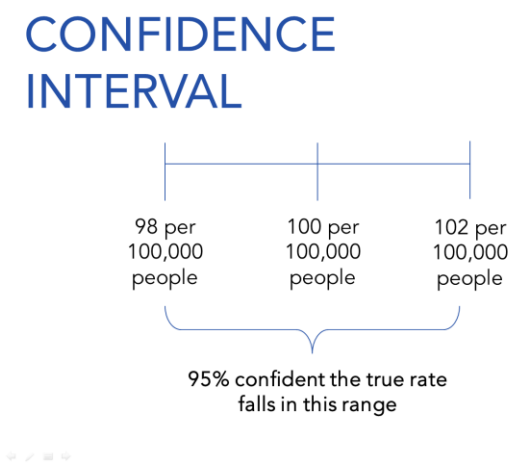
Let's take an example of suppression from the Tracking portal. If we look at Mesothelioma, a rare form of cancer caused primarily by asbestos, we see that much of Wisconsin is shaded in purple. This signifies that the rates are suppressed for these counties. I've just highlighted Eau Claire County. In the most recent two periods there hasn't been enough data to estimate a rate. If we did provide one, it would likely be unstable—meaning it couldn't be trusted. Just like with the weather app example, we do this to make sure we are providing estimates that aren't way off the mark!



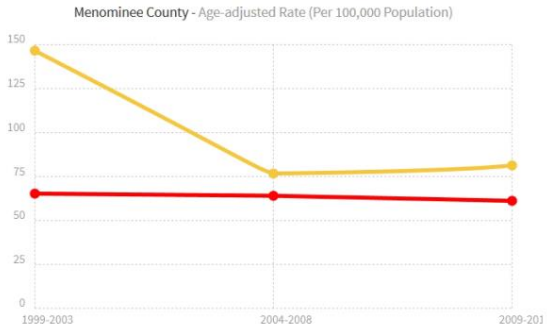
Another way we communicate how good or bad our estimates are is with something called **Confidence Intervals**. A confidence interval gives us a gauge of how *confident* we are in the rate we've calculated, hence the name! Ever watch the TV news and see a poll? The announcer might say that 53% of Americans support TV polling. If you look at the screen there's always some fine print that tells you that the estimate is "plus or minus 3%." What does that mean? It's similar to a confidence interval! It tells you that when the poll was done there was some potential error in the *estimation* of that 53% figure, but not more than 3% above or below the percentage given. More specifically, it might be that 50% of Americans support TV polling, or it might be that 56% of Americans support it. The true answer is probably somewhere in that range.

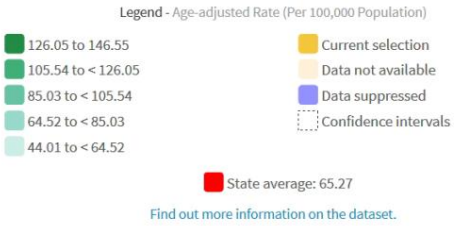


We use a similar principle in **epidemiology**. If a rate is 100 per 100,000, our 95% confidence interval might be 98 – 102 per 100,000 people. That says that we are 95% confident, based on our statistical calculations, that the true rate falls between 98 and 102. I should also note that the narrower the confidence interval, the better our estimate! The wider the confidence interval, the worse our estimate!



By way of example, let's look at the lung and bronchus cancer rate for Menominee County from 1999-2003 again. As I mentioned, the rate is 146.55. Notice, however, when I go into Table view, the "lower limit" (that is, the lower confidence interval) is 86.1 while the "upper limit" is 230.01. What does that tell us? It tells us that our estimate isn't exactly great. It might be better than no estimate at all, but there's a lot of potential for error. The rate could be much higher than 146.55, or much lower! Notice that Ozaukee County's age-adjusted rate is 51.42 with a confidence interval of 44.91 – 58.64. That's a much better estimate! We have a lot more confidence that we are close to the proper rate in that case.





	County	Count	Age-adjusted Rate	Lower Limit	Upper Limit	Standard Error
	Lafayette	52	53.18	39.64	70.09	7.42
	Langlade	126	88.07	73.21	105.37	7.93
	Lincoln	137	74.7	62.64	88.54	6.42
	Manitowoc	264	53.75	47.44	60.72	3.32
	Marathon	371	57.1	51.42	63.23	2.97
	Marinette	198	69.16	59.8	79.71	4.95
	Marquette	110	102.94	84.27	125.01	10
	Menominee	23	146.55	86.1	230.01	35.06

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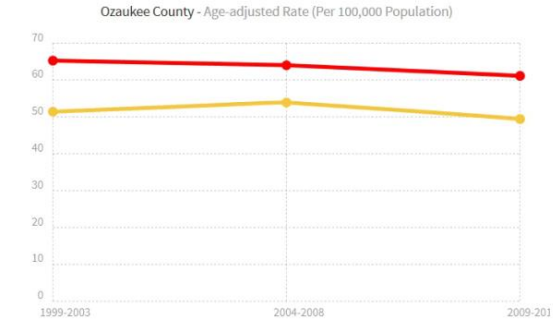

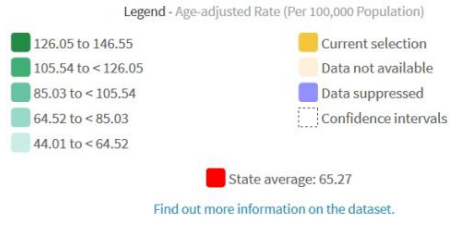

	County	Count	Age-adjusted Rate	Lower Limit	Upper Limit	Standard Error
	Milwaukee	3435	75.48	72.97	78.06	1.29
	Monroe	165	73.65	62.83	85.84	5.74
	Oconto	143	67.07	56.51	79.15	5.62
	Oneida	175	66.72	57.06	77.75	5.12
	Outagamie	370	51.69	46.55	57.23	2.69
	Ozaukee	226	51.42	44.91	58.64	3.43
	Pepin	30	64.66	43.35	93.47	11.98
	Pierce	91	61.72	49.61	75.79	6.52

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Now that we've talked about some of the important technical terms you'll need to know to use the portal, I want to direct you to further resources.

To access the Tracking glossary, visit our website, dhs.wisconsin.gov/epht, and click on the "Glossary" tab on the left side of your screen. This resource provides definitions for all the terms we've just discussed, as well as dozens of other terms that may come up while using the Tracking portal.

dhs.wisconsin.gov/epht

Additionally, every page of the portal has a hyperlink that reads "Find out more information on the dataset" and takes you to a data details page that will provide deeply detailed information about how the data presented on the portal is generated.

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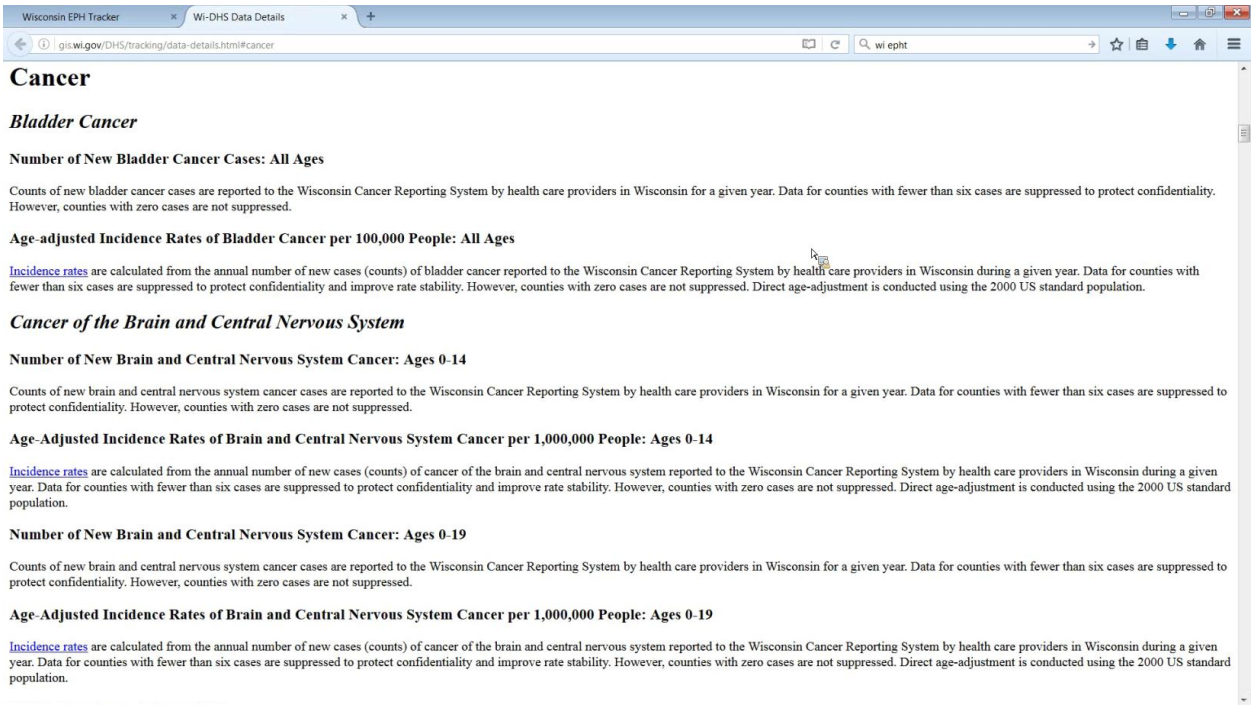

Also know that if you ever have trouble deciphering the data details or have questions about the data, you can visit the Tracking website dhs.wisconsin.gov/epht or contact the Tracking Program at dhstracking@wi.gov.

That wraps up Tracking 270: Portal Terminology and Data Details. Be sure to check out our other tutorials to learn more about navigating the Tracking portal by visiting dhs.wisconsin.gov/epht and clicking on the **Training** tab. Happy Tracking!