

Washington State Domestic Violence Fatalities

I am interested in understanding trends in domestic violence fatalities in Washington state, specifically:

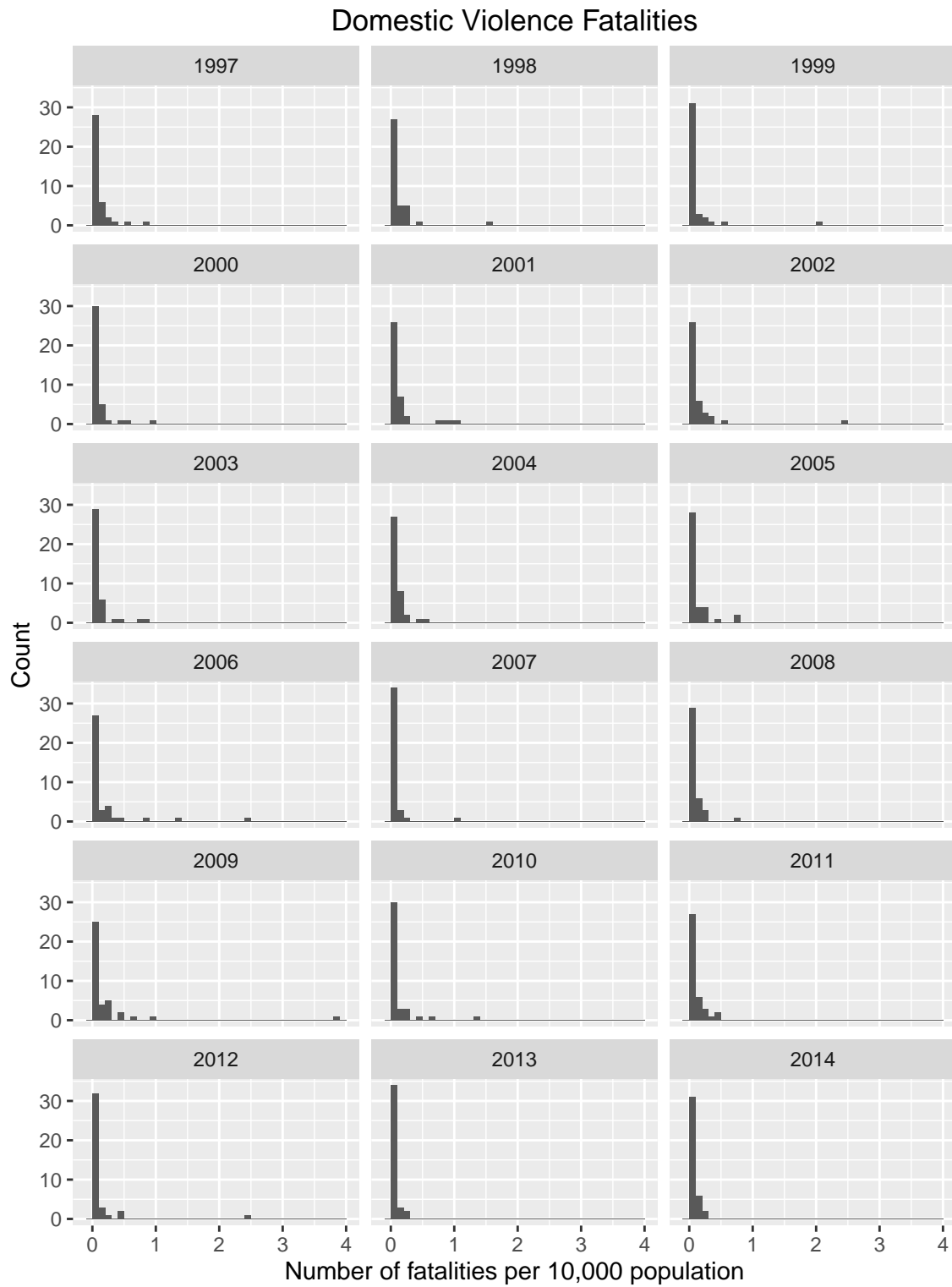
- Have rates of domestic violence homicides, suicides, and fatal police interventions changed over time?
- Which counties have the highest numbers of domestic violence homicides and suicides (particularly after normalizing for population)?

To address these questions I am using data from the Washington State Coalition Against Domestic Violence's [Domestic Violence Fatality Review](#) and population data from the Office of Financial Management. The Domestic Violence Fatality Review provides county-level data on domestic violence homicides, suicides, and fatal police interventions from 1997 through 2015 (though I will only be using data through 2014 as the second half of 2015 is not yet available). I used [Tabula](#) to convert the [data PDF](#) into a CSV. The resulting CSV is still quite messy and required some significant data cleaning. The Office of Financial Management publishes yearly county-level population estimates which are probably good enough for these purposes.

All of the cleaning and plotting of the data (with the exception of running the data PDF through Tabula to get a CSV) was done in R. To reduce clutter and focus on the visualizations I've hidden the code chunks, but they can be viewed in [the .Rmd file](#).

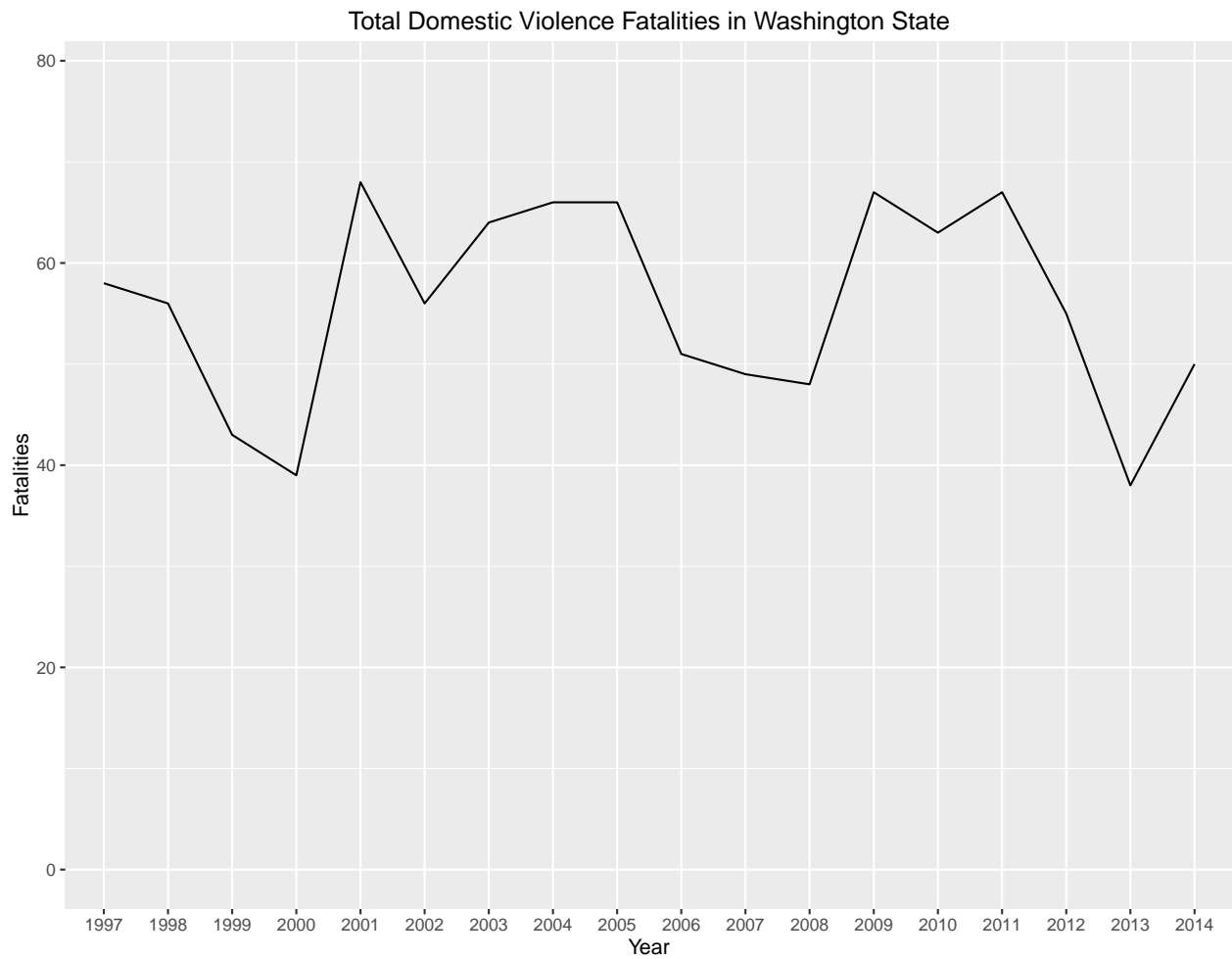
Distributions

What is the distribution of fatalities by county in a given year, normalized by population?

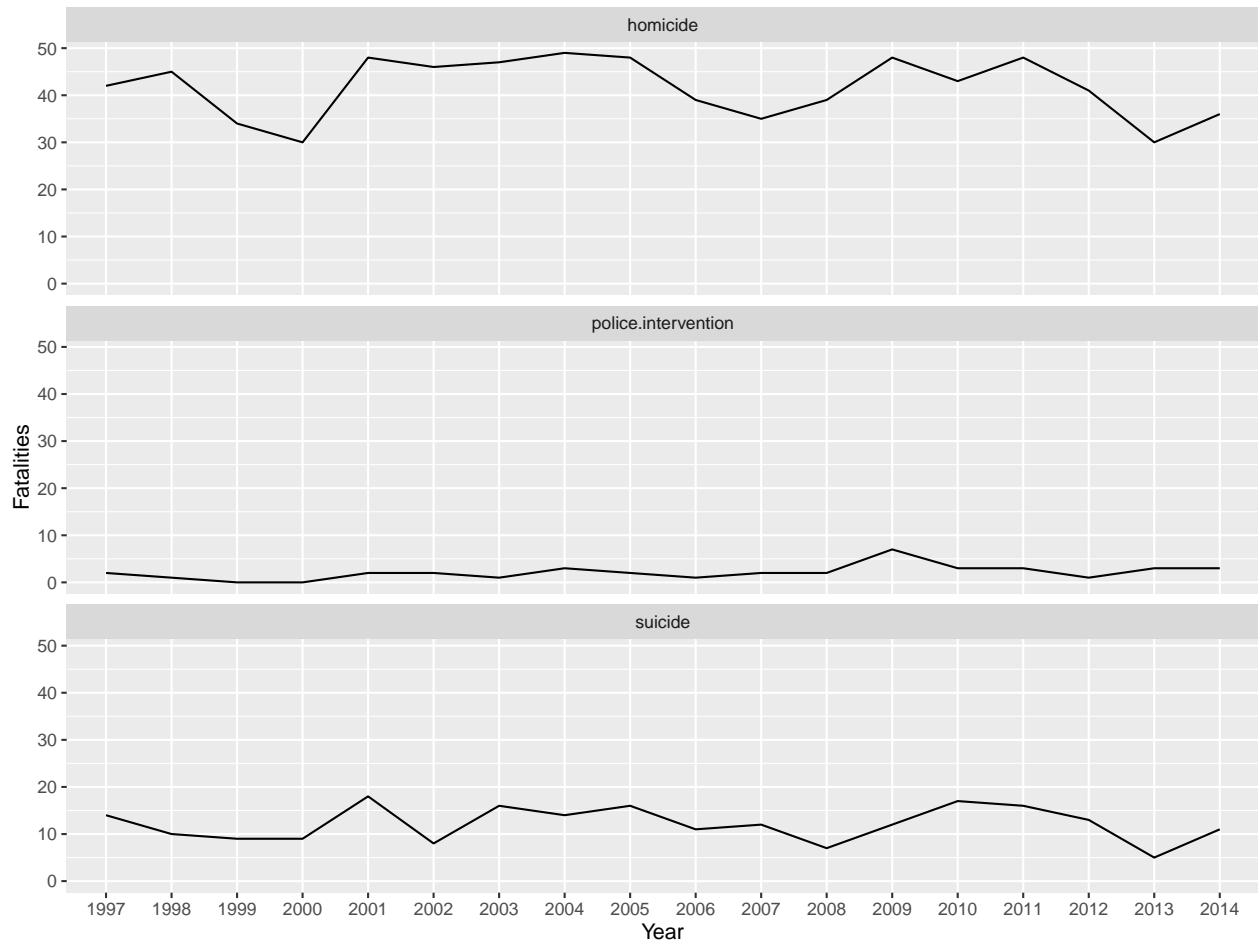


Time series and temporal trends

What, if any, temporal trends are there in total fatalities and the three types of fatalities?

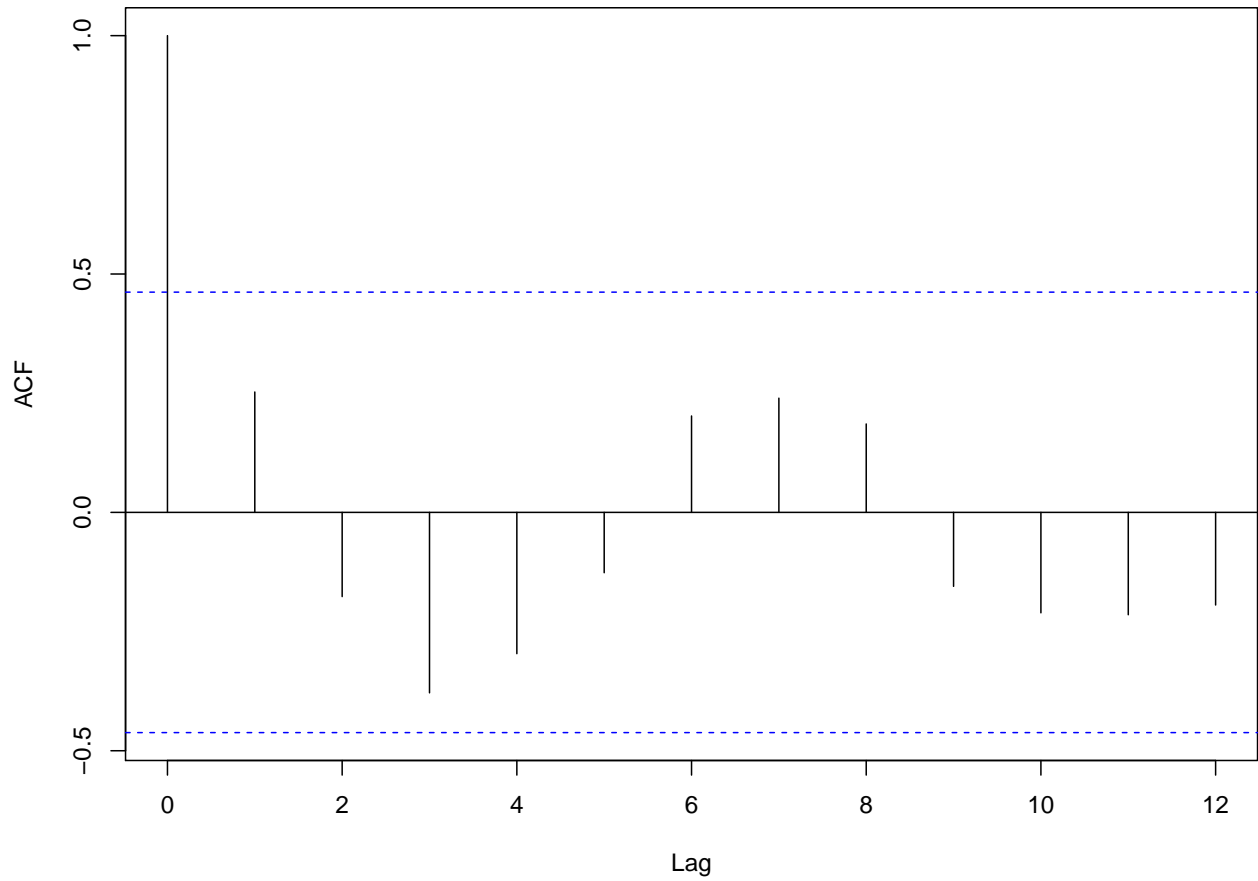


Domestic Violence Fatalities in Washington State by Type

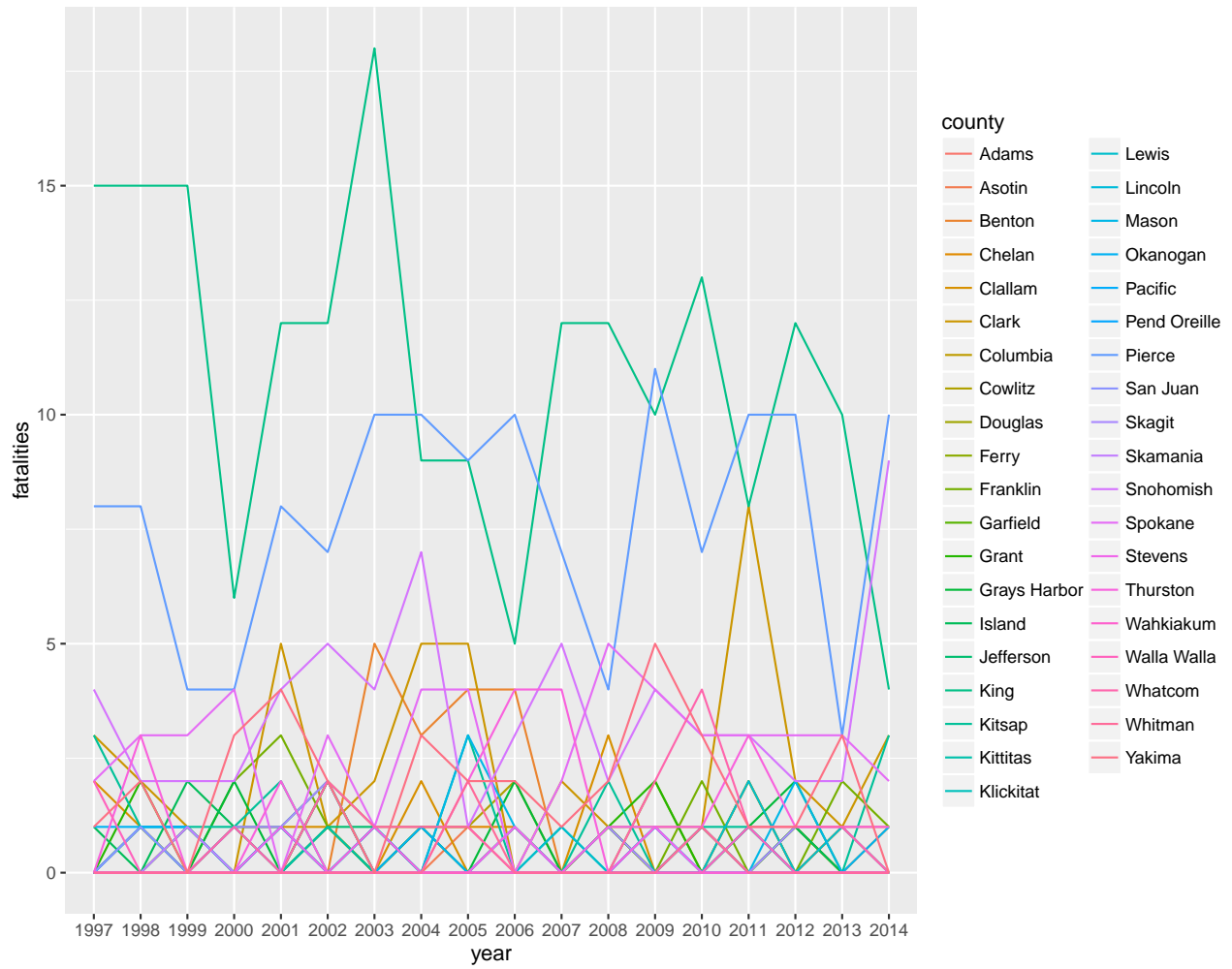


If I were planning more confirmatory statistics with this data I'd probably want to know about the degree of temporal autocorrelation.

**Autocorrelation function for statewide
total domestic violence fatalities**

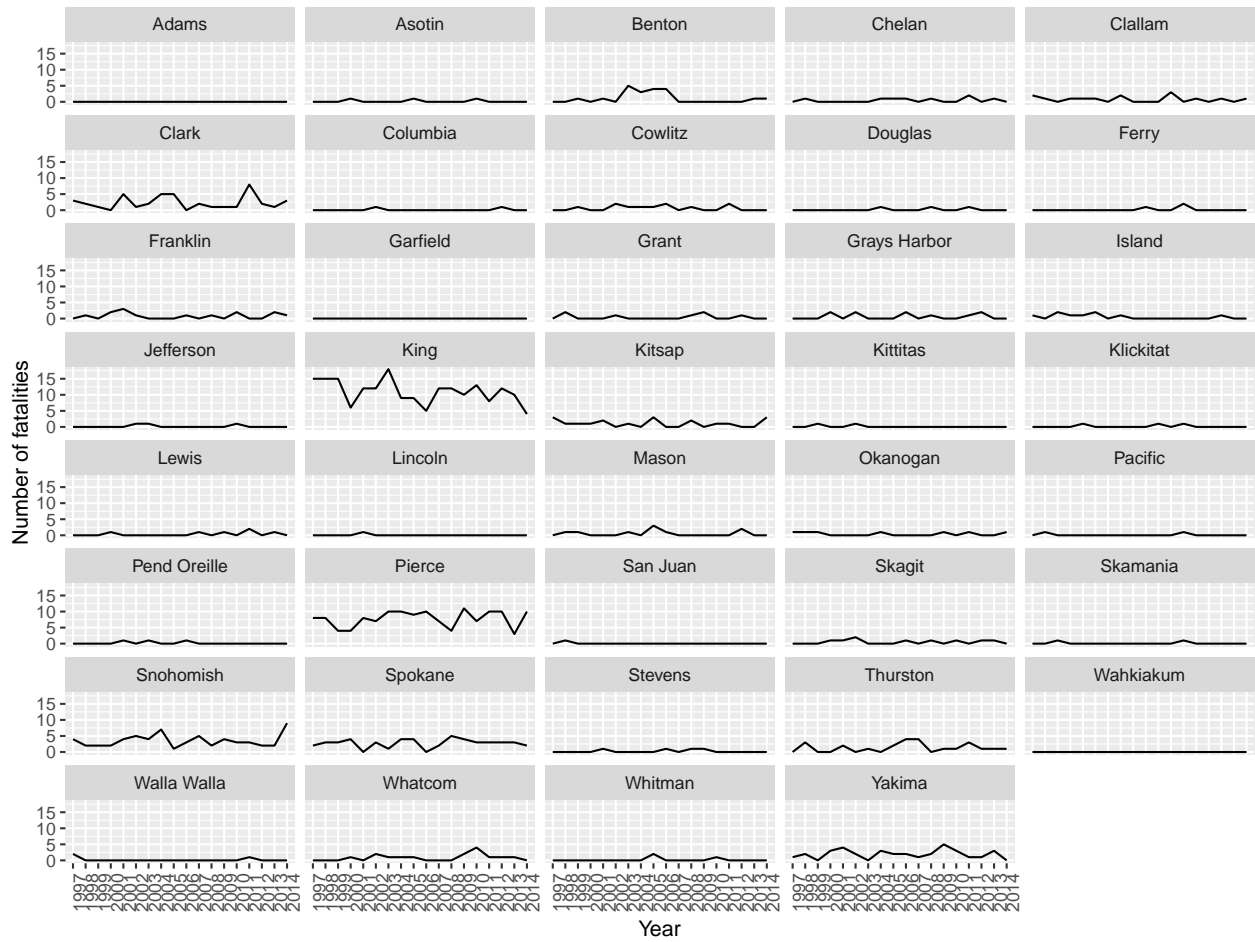


Can we see any trends in homicides by county?



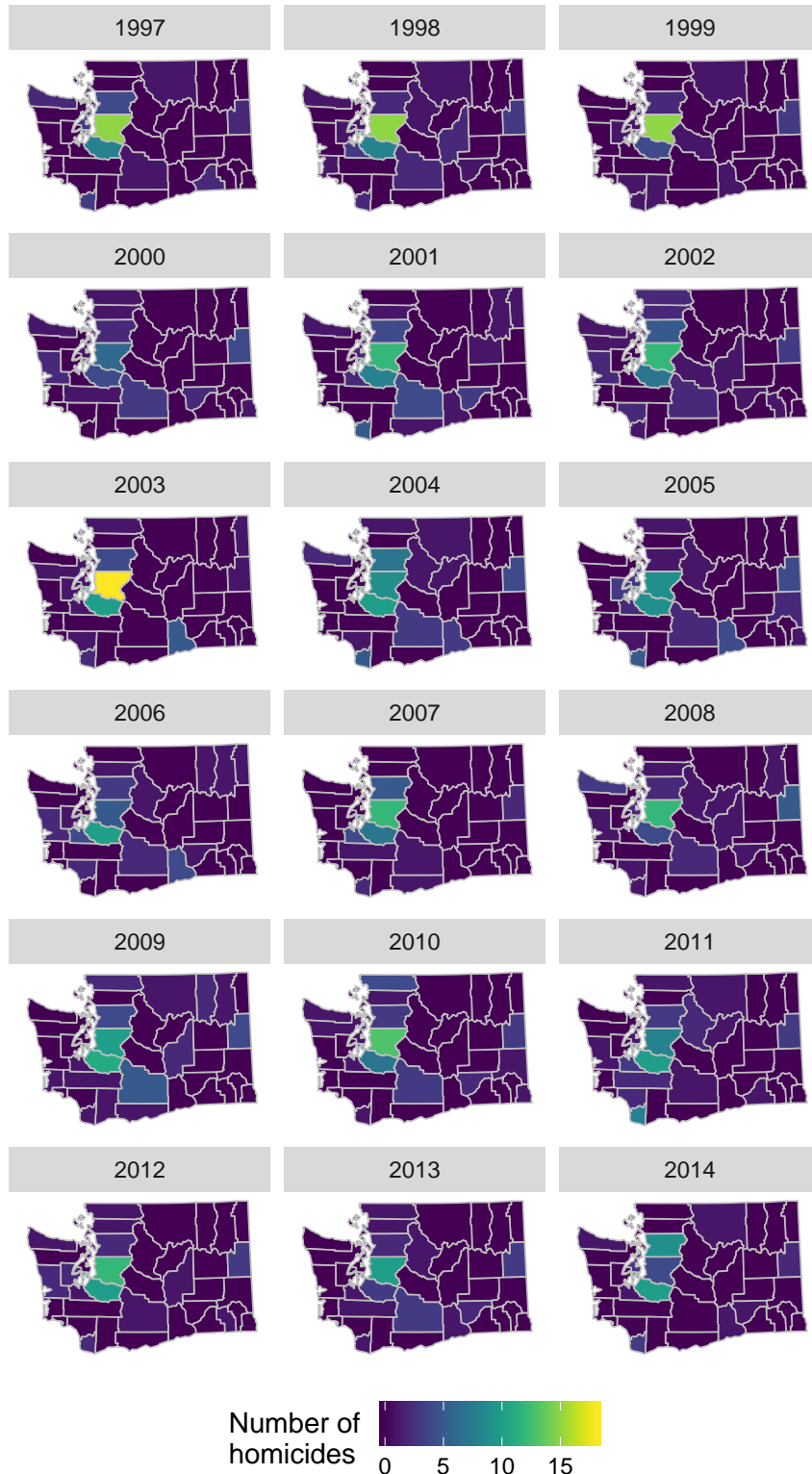
Okay not that way...how about faceting?

Domestic Violence Homicide Fatalities



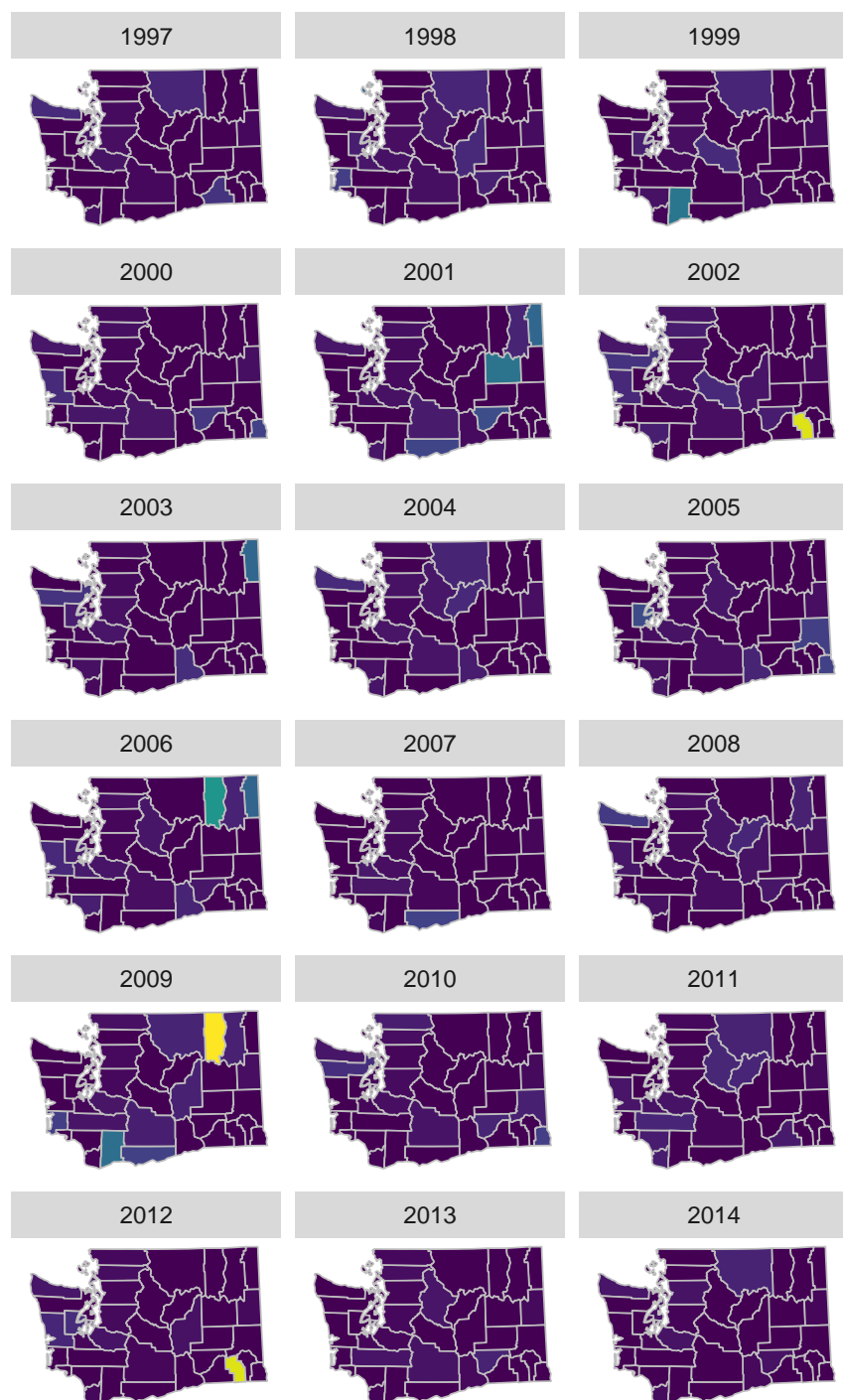
Maps of fatalities by county

Domestic Violence Homicides



Predictably, this basically looks like a population map of Washington. So instead let's look at the number of homicides per 10,000 people.

Domestic Violence Homicides



Homicides per
10,000 population

