

# CAUSES OF DEATHS IN MEXICO 2008



Main Data from: <http://sinais.salud.gob.mx>  
SINAIS: Sistema Nacional de Informacion en Salud

Melissa Tsang, Ignacio Olivera, Eli Payne, & Jaime Ramos  
Professor: Hadley Wickham TA: Garret Grolemond

## Motivation:

Motivated by the so called Mexican drug war, we started analyzing the data, looking for the most dangerous federal entities and municipalities. However, our analysis lead us to more results, by subdividing the causes of death and comparing death trends versus change in temperature throughout Mexico and comparing with 2005-2007.

## Goals: To Study Deaths in Mexico

1. Death Trends Related to Temperature
2. External Causes of Death
3. Deaths of Foreigners

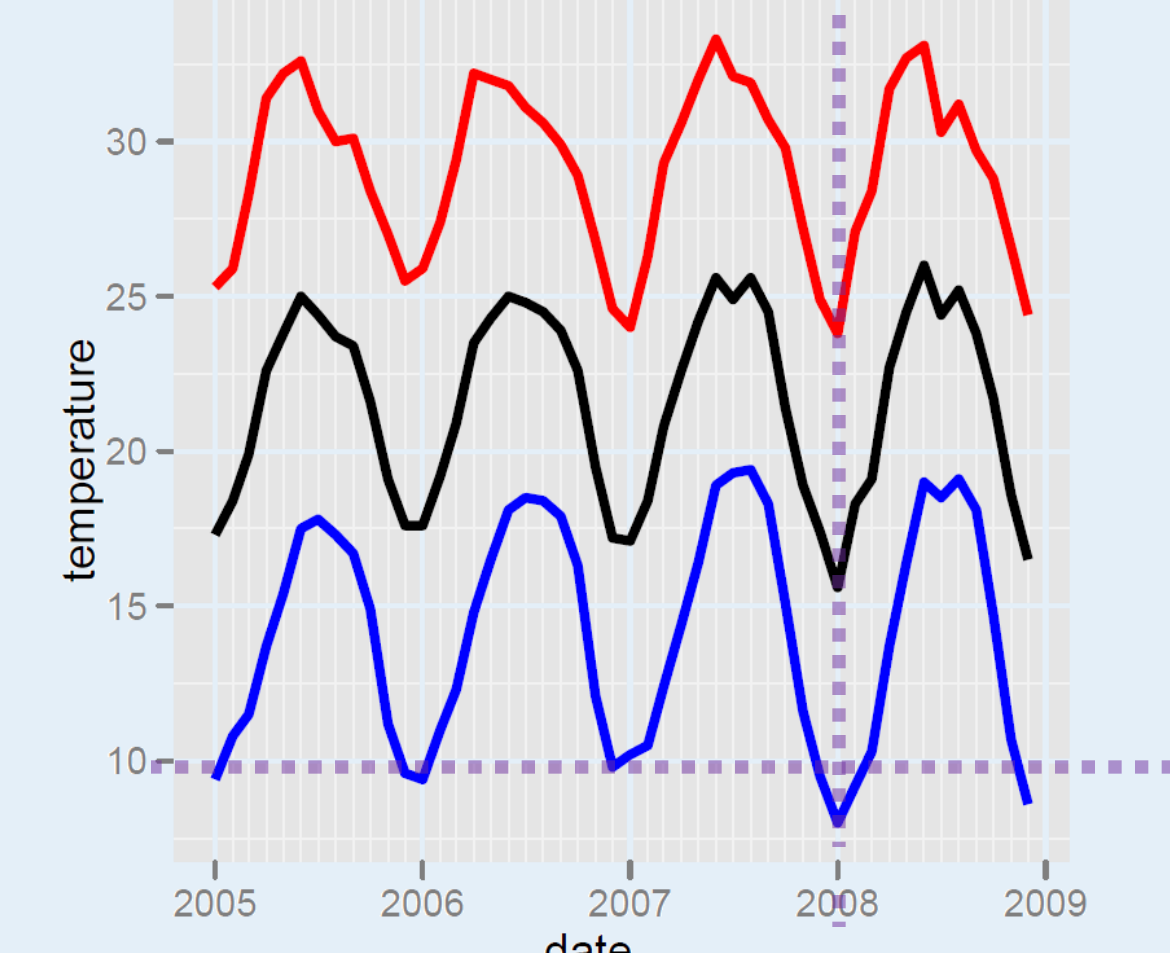
## Death Trends Related to Temperature

Nationwide and Mexico (state)-Federal District

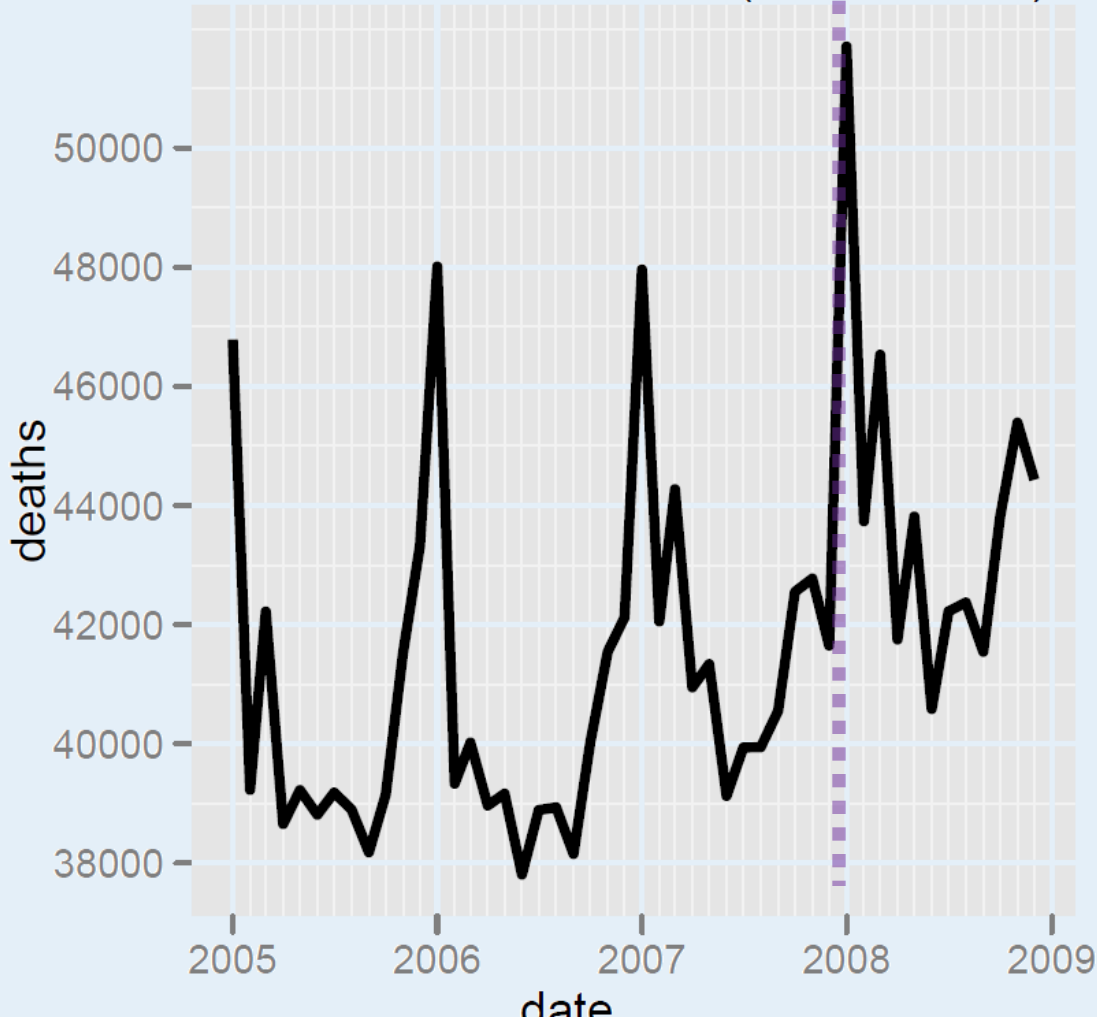
### Nationwide Cold front 2008:

At both **National level** and **State level**, a decrease in temperature correlated with an increase in the number of deaths.

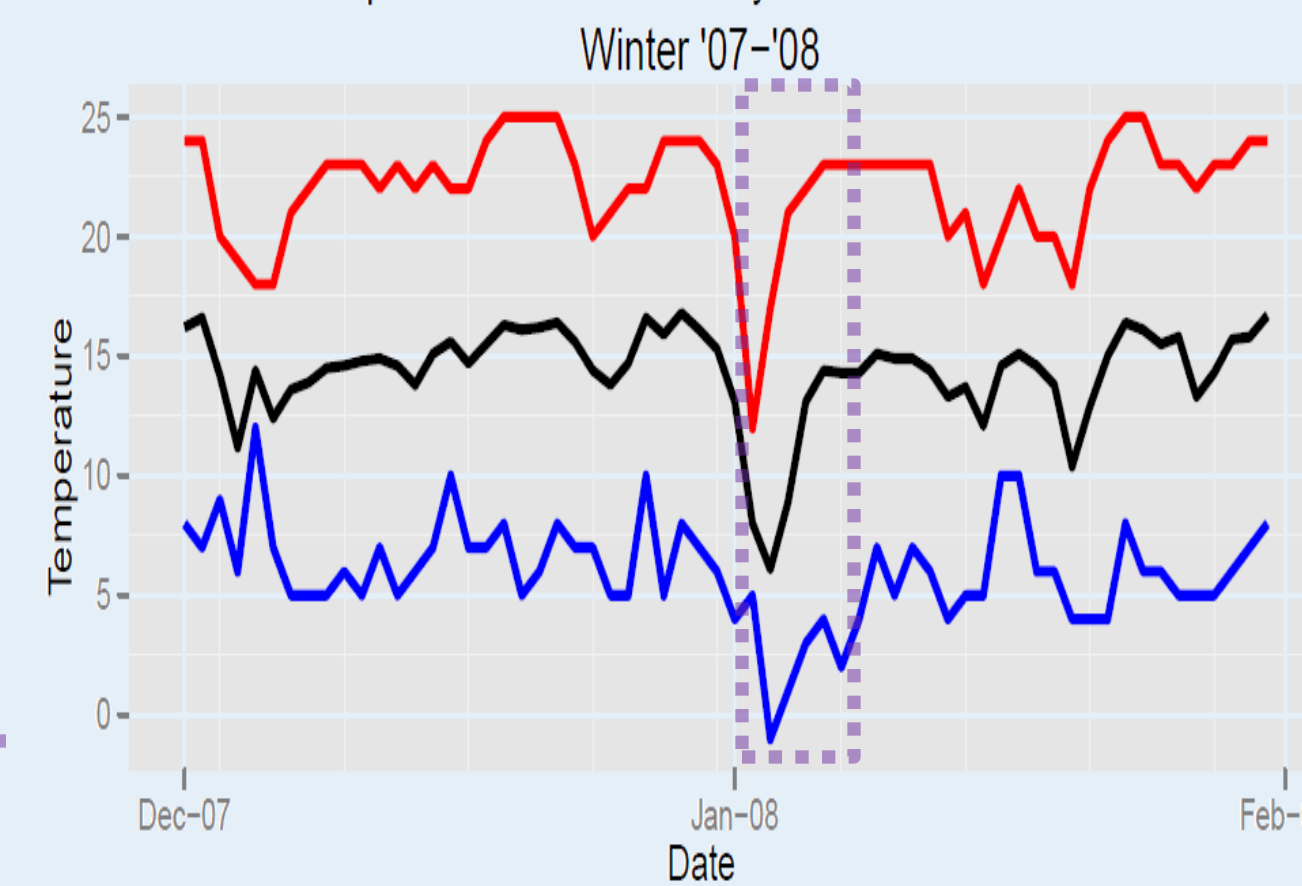
Temperatures from 2005 - 2008 (Nationwide)



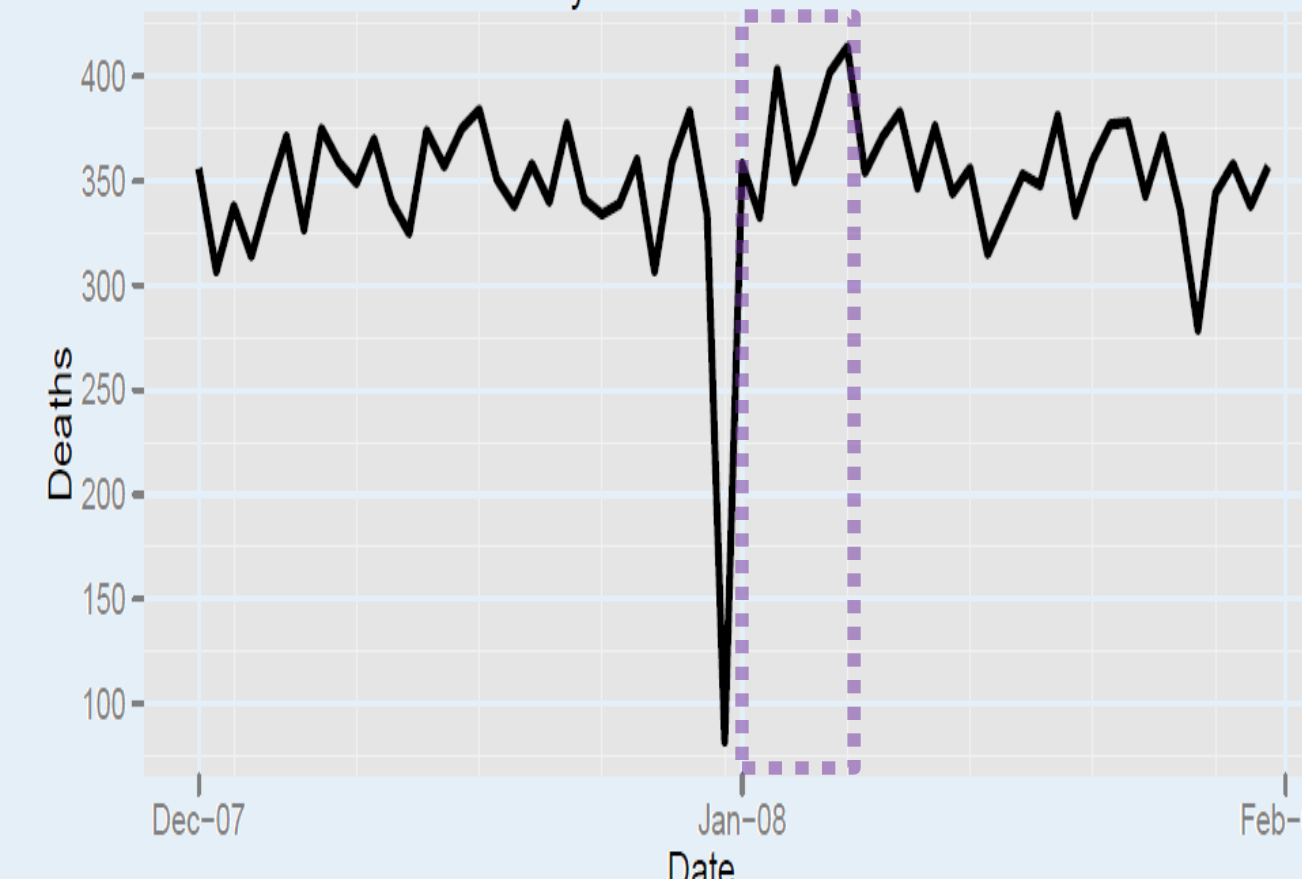
Deaths from 2005 - 2008 (Nationwide)



Temperatures in Mexico City and Federal District

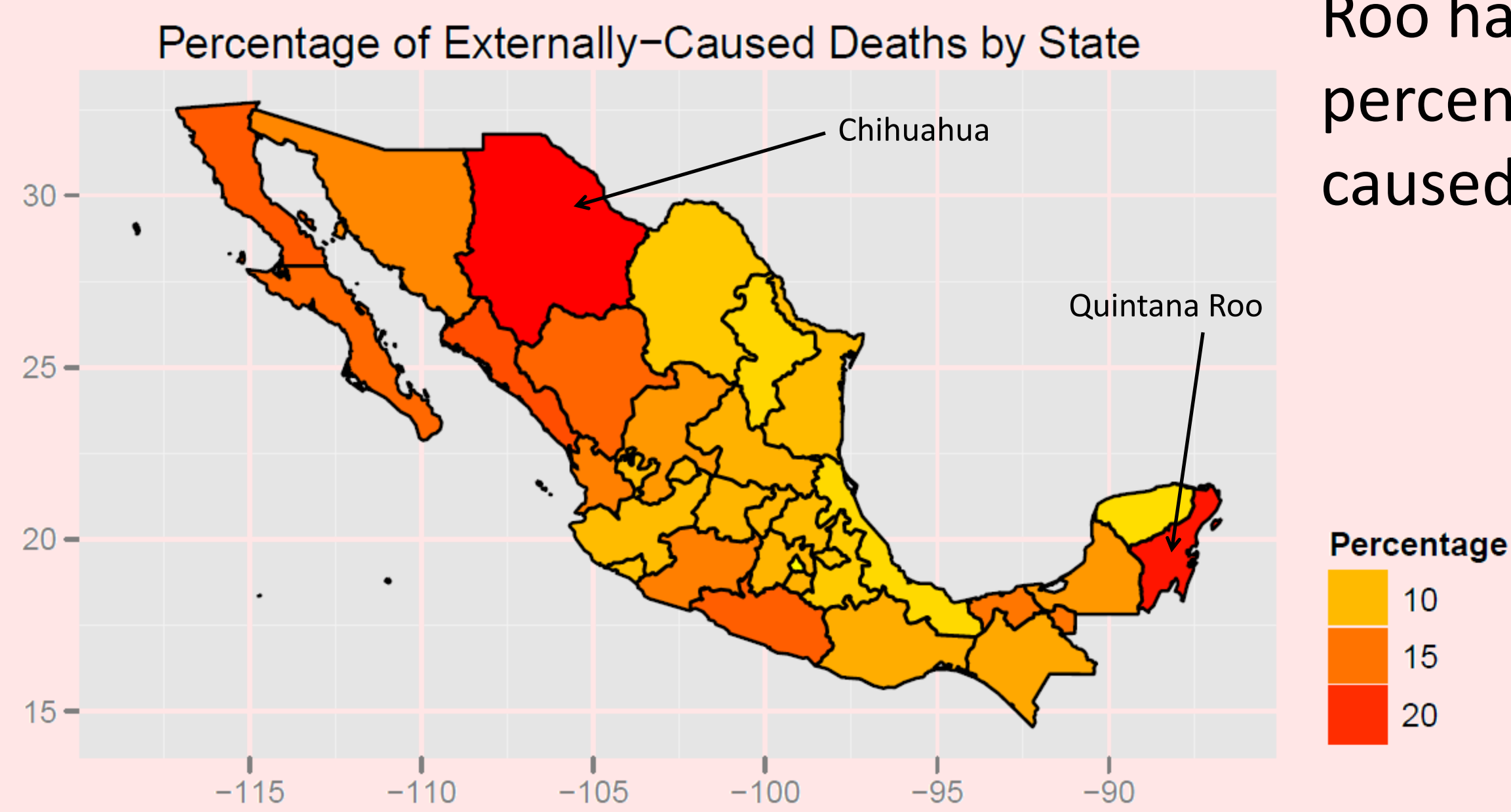


Deaths in Mexico City and Federal District Winter '07-'08



## External Causes of Death

Percentage by State.



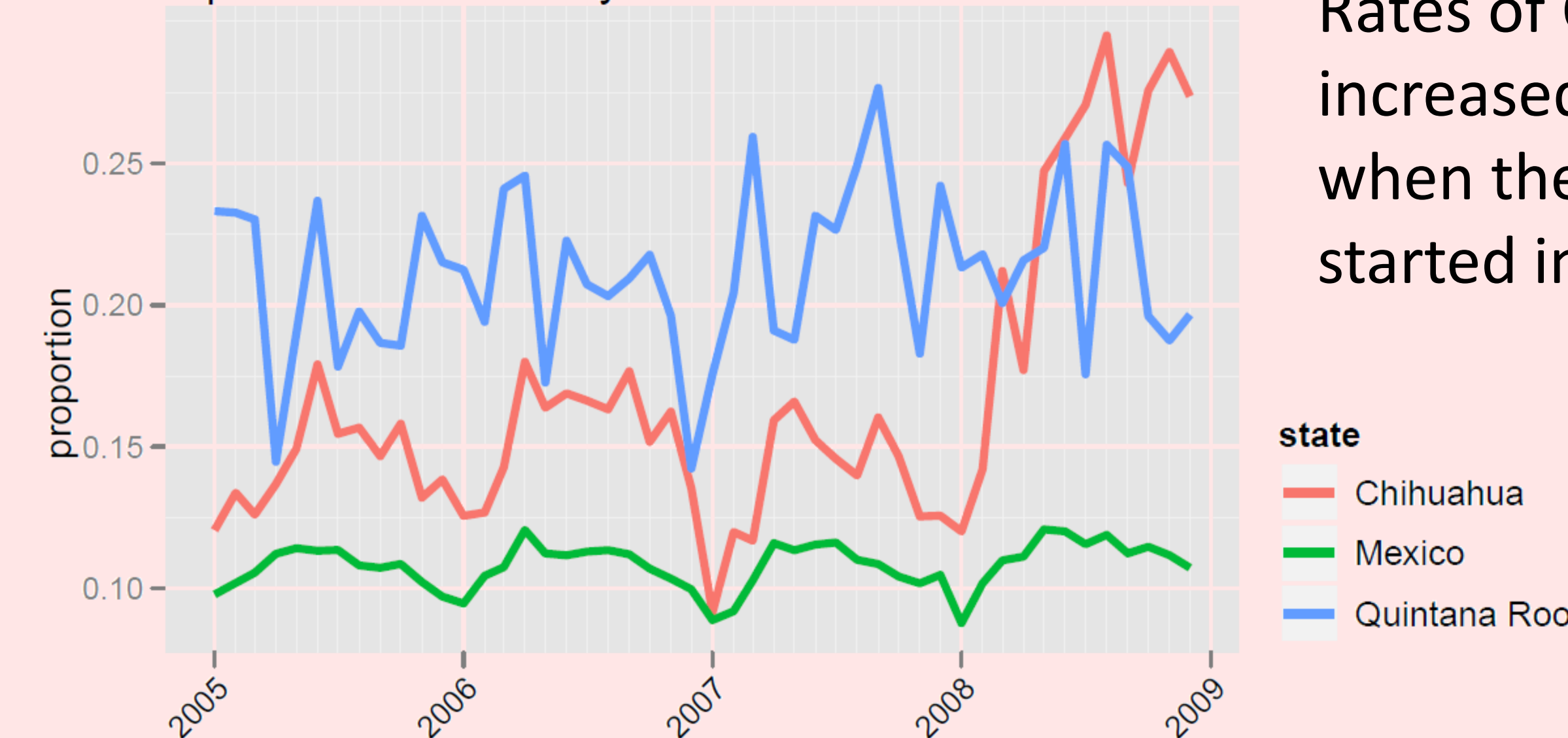
Chihuahua and Quintana Roo had the highest percentages of externally caused deaths.

Further analysis:

**Quintana Roo** had the highest rate of suicides at 0.040 (nearly 4 times the national average of 0.011) and **Chihuahua** had the highest rate of homicides at 0.131 (national 0.028).

## Time Line of Proportion for Chihuahua and Quintana Roo

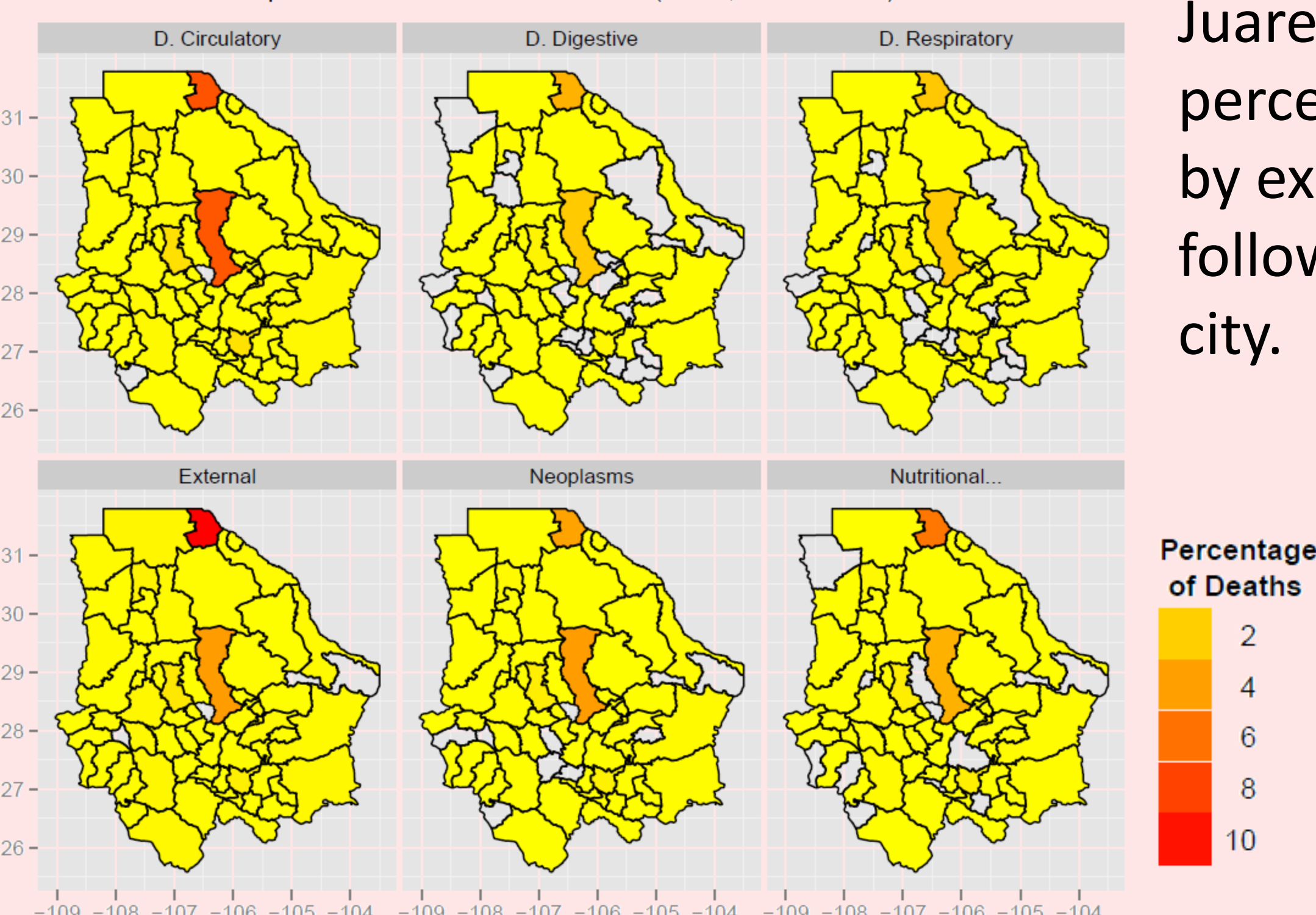
Proportions of Externally-Caused Deaths 2005-2008



Rates of Chihuahua increased dramatically when the drug war started in 2008.

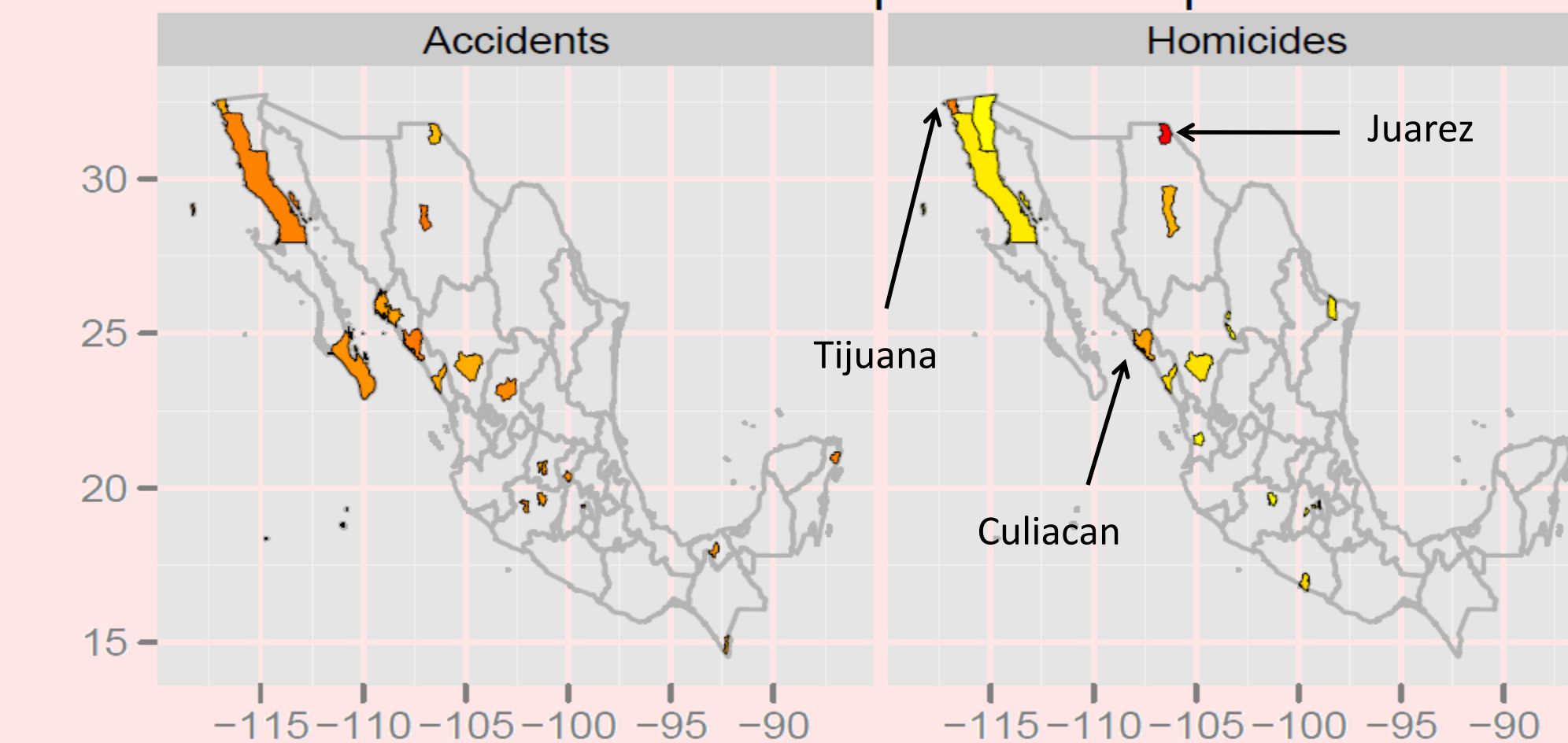
## Focusing on Chihuahua

Top 6 ICD-10 Causes of Death (2008, Chihuahua)



Juarez had the highest percentage of deaths by external causes followed by Chihuahua city.

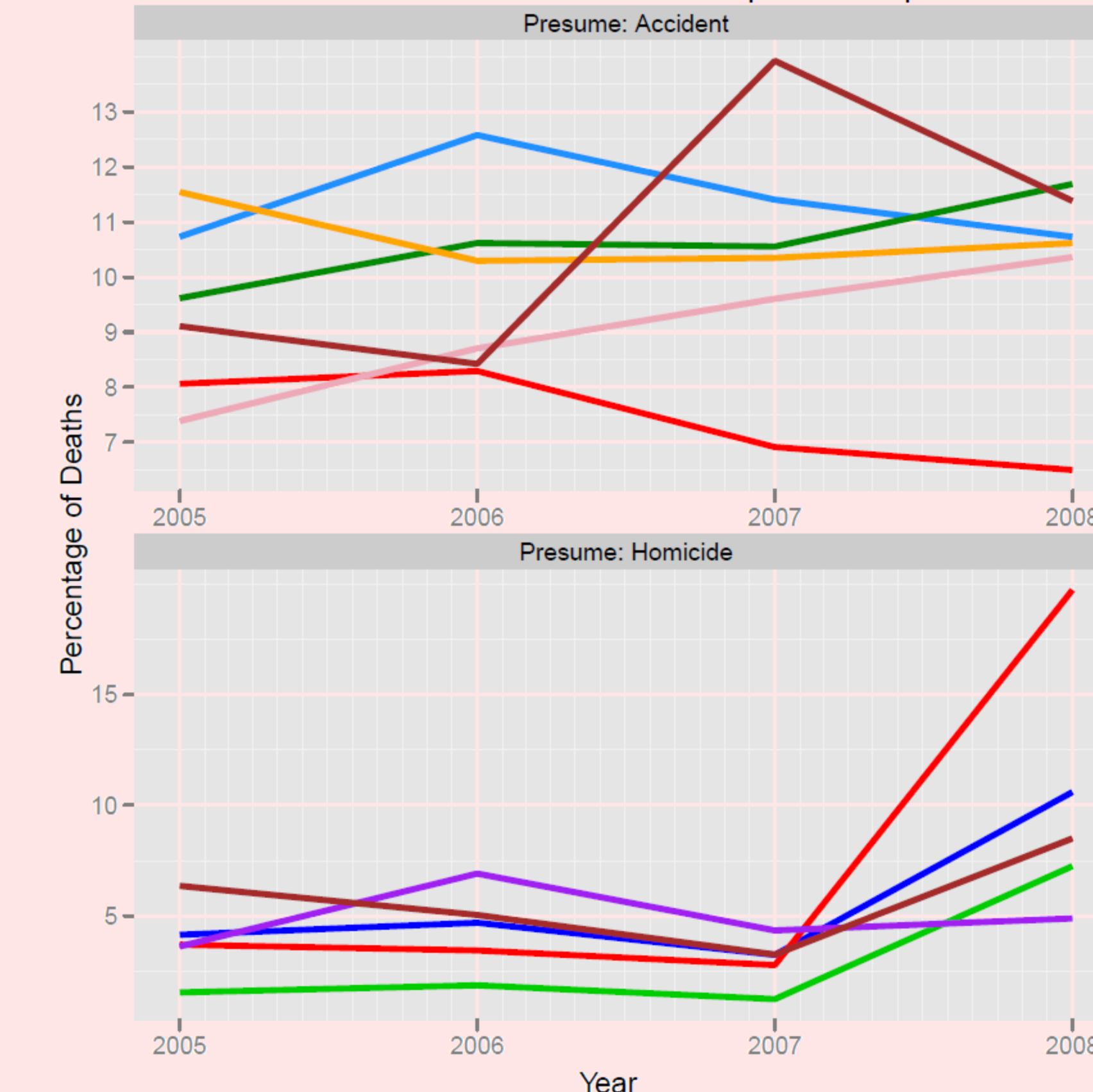
External Causes: Top 20 Municipalities



Top 20 Most Dangerous Municipalities 2008

Juarez, Chihuahua.  
Tijuana, Baja Cal.  
Culiacan, Sinaloa.

External Causes of Death Trend: Top 5 Municipalities



Time Line for the Top 5 Most Dangerous Municipalities

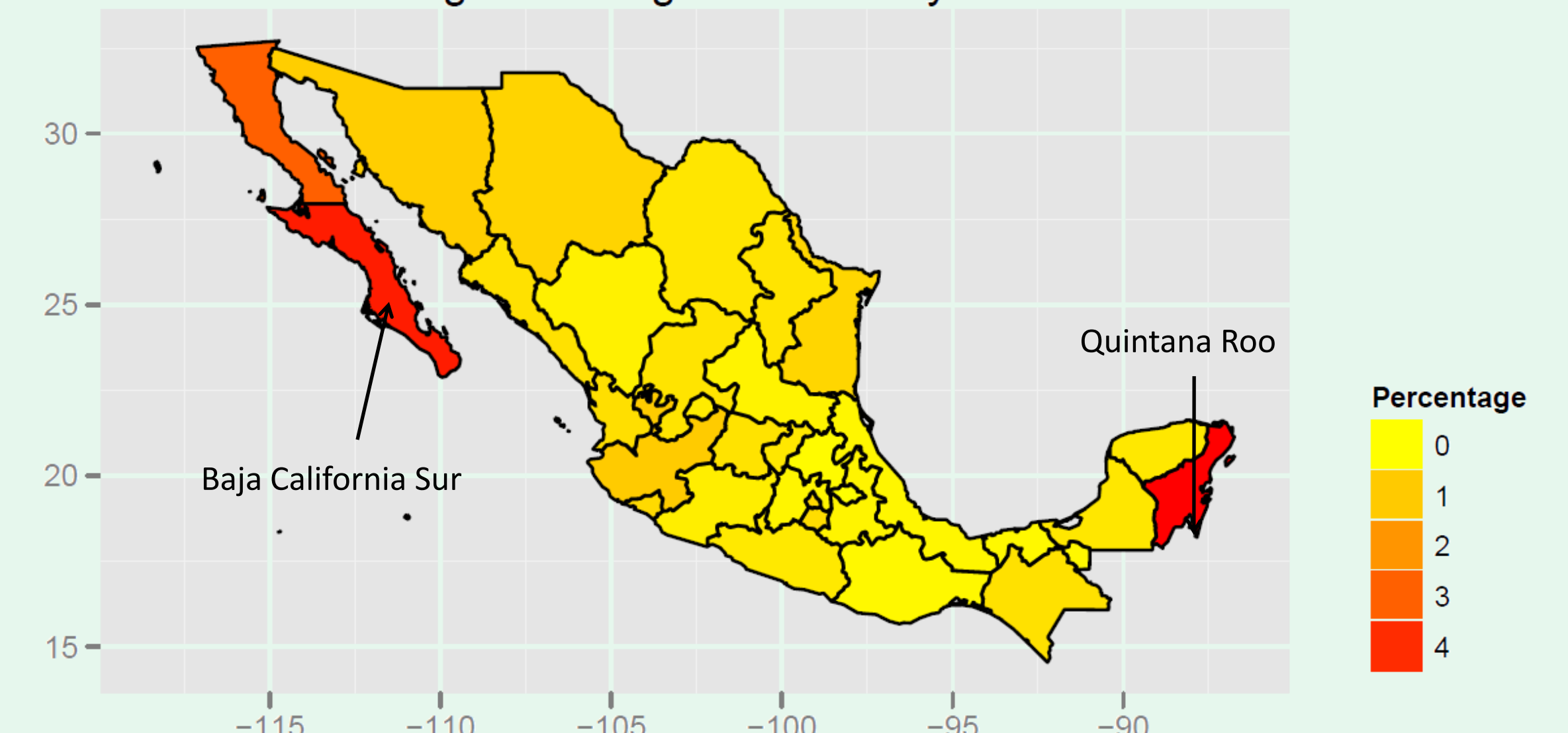
Increased percentages in 2008.

## Deaths of Foreigners

Percentage by State.

Baja California Sur and Quintana Roo had the highest percentages of foreigner deaths.

Percentage of Foreigner Deaths by State



## Conclusion:

Deaths are negatively correlated with temperature at a national and State level.

Incidence of externally caused deaths in Chihuahua increased since the start of the drug war in 2008, mostly in the city of Juarez.

Most foreign deaths in Quintana Roo (Cancun) and Baja California (Tijuana).