

**Executive Summary**

**Topic: Gun Control Law Efficacy**

***Target Questions:***

- 1. Do stricter firearm control laws help reduce firearm mortality?

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## **Context**

Gun control laws are subject to polarizing opinions, misleading news titles, and the cheap tactic of emotional manipulation. With bipartisan politics, and their associated news outlets, pushing very clear interests, it is difficult for the average citizen to determine the real impact of gun control. Harder still is to know what the laws actually do. Death Rates by Firearm-Injury as reported by the CDC and an analysis on firearm control laws by U.S. State. Using these two, this summary aims to answer the question: **“Do stricter firearm control laws help reduce firearm mortality?”**

Current Consumer Price Index, Federal Funds Rate, and Unemployment Rates for the past 25 years are below. This data was collected using *St. Louis Fed Web Services: FRED® API*.

## **Methodology**

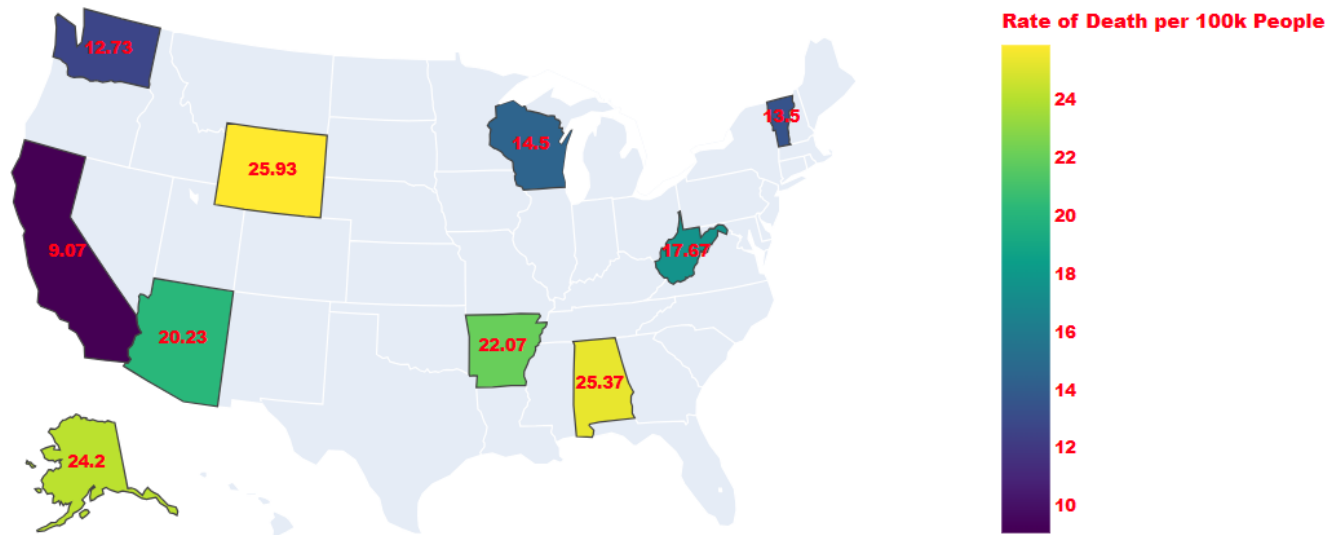
Firearm-Injury Death Rates were sourced from [data.cdc.gov](https://data.cdc.gov); [NCHS - VSRR Quarterly provisional estimates for selected indicators of mortality | Data | Centers for Disease Control and Prevention \(cdc.gov\)](https://www.nchs.gov/data/vsrr). This data will be restricted to the year 2022 and serve as a basis to evaluate severity of firearm deaths.

Research on firearm control laws was done by utilizing <https://everytownresearch.org/>. This site compiles and updates a collection of all state laws related to firearms, which are employed by each state, and evaluate the relative importance of a law in its ability to reduce mortality rates. Some laws are evaluated with less-than scientific means as these laws start to become ephemeral in nature, but those lacking in numerical impact have reasoning that corroborates their relative importance. Each law was scored and categorized in a table to be used when developing the upcoming State scores and Likert Scale.

Each category will be portrayed on choropleth heat maps to connect geographic identity to numerical values using color.

## Firearm-Related Injury Death Rates:

### State Death Rate by Firearm-Related Injury(Top and Bottom 5)



Darker states have lower death rates. Brighter states have higher death rates. Wyoming leads out of all states for the highest death rate per 100,000 people. In the table shown below, Control\_Score denotes how strict a state's gun laws are. Although expected due to taking the top and bottom five states, there is a notable inverse relationship between Death Rate and Control Score.

#### Lowest Firearm-Related Injury Death States:

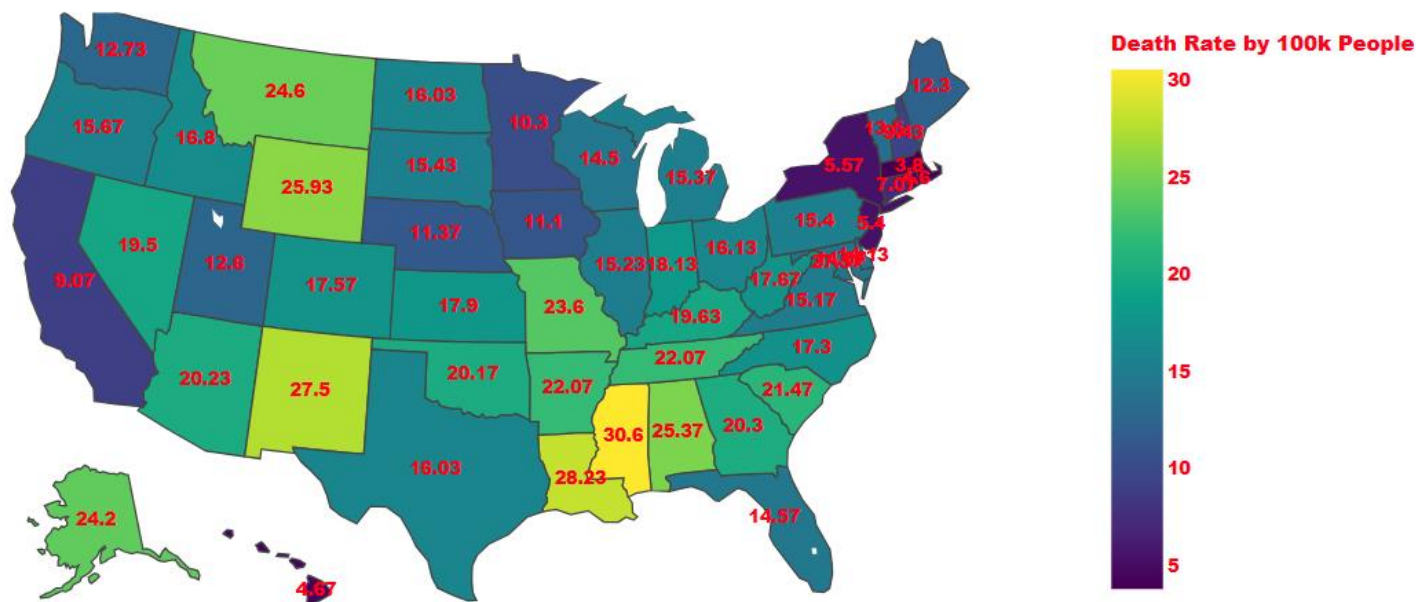
1. Massachusetts
2. Rhode Island
3. Hawaii
4. New Jersey
5. New York

#### Highest Firearm-Related Injury Death States:

1. Mississippi
2. Louisiana
3. New Mexico
4. Wyoming
5. Alaska

	state	Death_Rate	Likert_Scale	Control_Score
25	MS	30.60	VW	3.5
18	LA	28.23	Weak	24.0
32	NM	27.50	Mod	51.0
50	WY	25.93	VW	5.5
1	AL	25.37	VW	16.5
34	NY	5.57	VS	85.5
31	NJ	5.40	VS	83.0
11	HI	4.67	VS	89.0
39	RI	4.60	Str	67.0
19	MA	3.80	VS	86.0

State Death Rate by Firearm-Related Injury



**Patterns:**

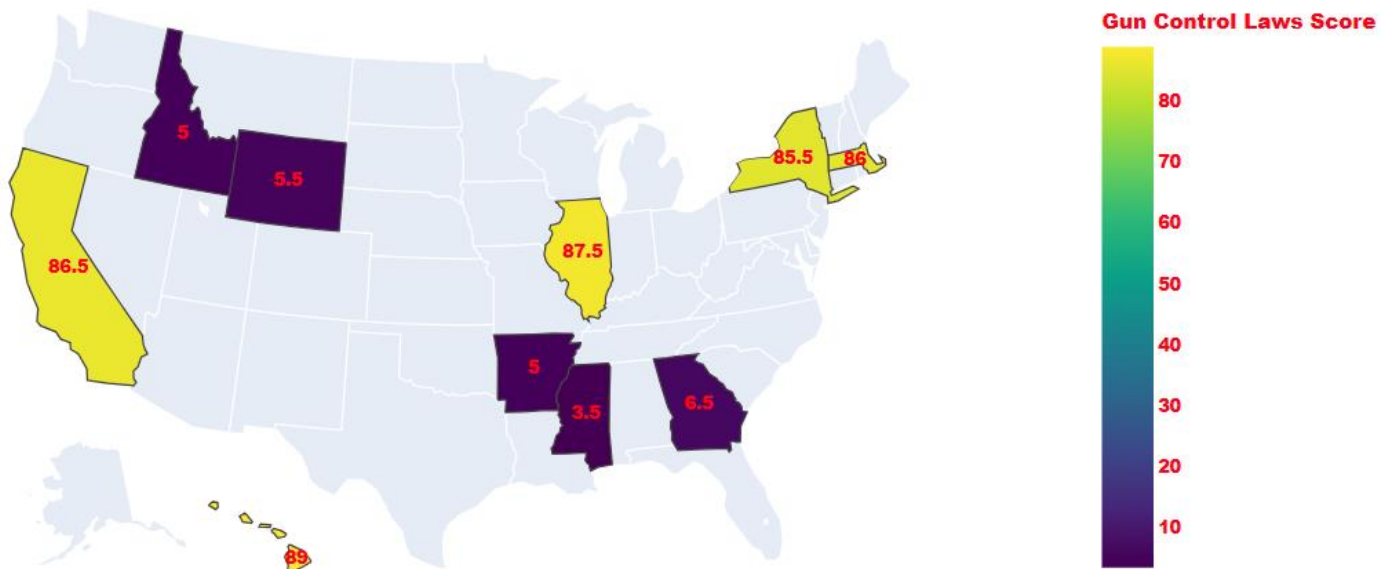
- 1. Midsouth/Southeast have notably higher death rates
- 2. Midwest has a mixture of low and high death rate states
- 3. Northeast is exceedingly low

Revealing the entire map shows some geographical trends highlighted below. Surprisingly, many heavily populated states have low death rates. Texas in particular, despite being gun friendly, has a moderate death rate.

## **Gun Control Laws by State:**

A catalog of all gun control related laws used by the States, ranked in accordance to efficacy, and given scores based on that efficacy is used to establish state scores. Laws were given scores of 6, 3, 1.5, and 1 pending their efficacy in reducing death rates and then summed for a total score to measure a state's gun control laws. Note that **no single state has enacted all 50 of the potential laws** noted here for a total score of 103. An exhaustive list of laws and which states have enacted them is available with the Explore by Policy/State section at [EveryTownResearch.org](http://EveryTownResearch.org) site.

### **State Gun Control Laws Score(Top and Bottom 5)**



### **Lowest Control Score States:**

1. Mississippi
2. Indiana
3. Arkansas
4. Wyoming
5. Georgia

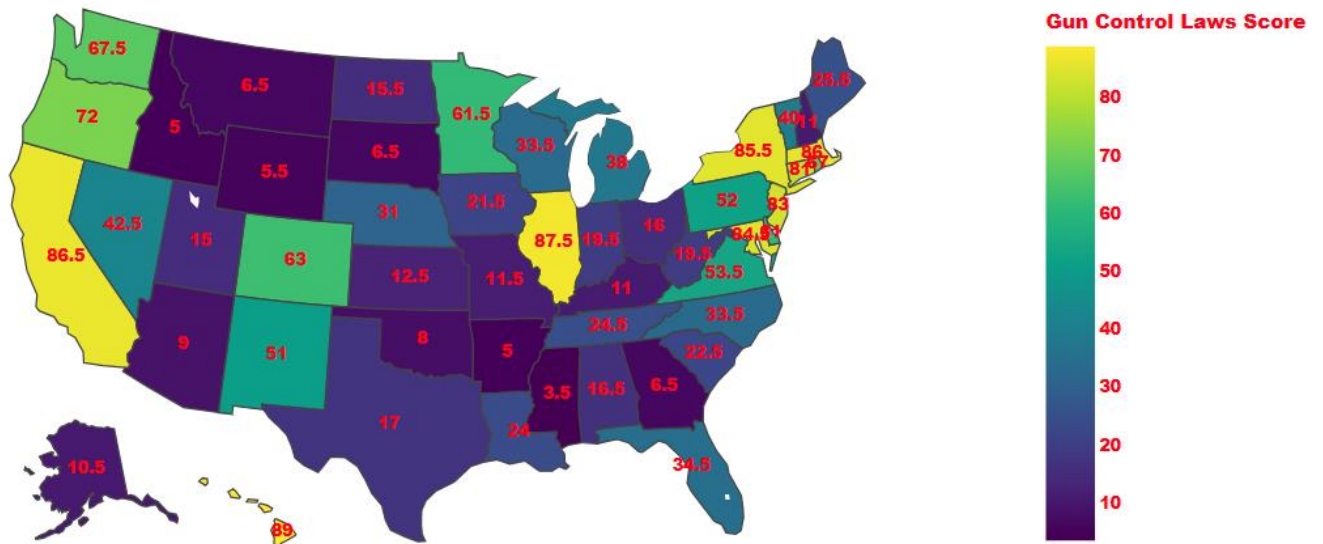
### **Highest Control Score States:**

1. Hawaii
2. Illinois
3. California
4. Maryland
5. New York

	state	Death_Rate	Likert_Scale	Control_Score
11	HI	4.67	VS	89.0
14	IL	15.23	VS	87.5
4	CA	9.07	VS	86.5
19	MA	3.80	VS	86.0
34	NY	5.57	VS	85.5
10	GA	20.30	VW	6.5
50	WY	25.93	VW	5.5
2	AR	22.07	VW	5.0
13	ID	16.80	VW	5.0
25	MS	30.60	VW	3.5

The previous, but expected pattern, is beginning to cement itself as we see **repeat offenders in the Southeast with low Control Scores and high Death Rates**. While in the Northeast, **high Control Scores and low Death Rates are reinforced**.

#### State Gun Control Score



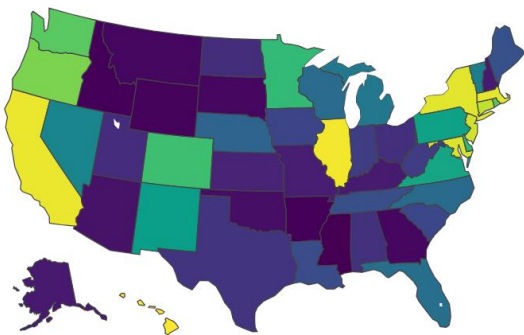
Observing the full map further reinforces the pattern we have seen thus far.

#### **Patterns:**

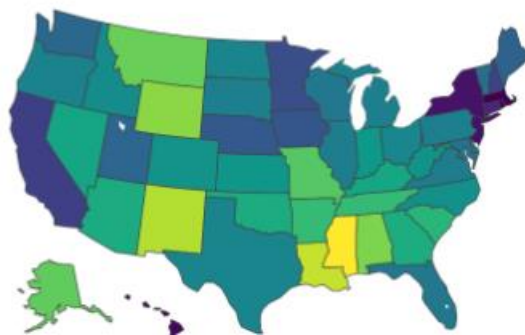
1. Midsouth/Southeast have notably lower Control\_Scores
2. Midwest has a mixture of low and high Control\_Scores
3. Northeast is exceedingly high in Control Scores

For ease of comparison, the State Death Rate by Firearm-Related Injury and the State Gun Control Scores are plotted below. Values and legends are removed to reduce clutter, but they are the same.

State Gun Control Score



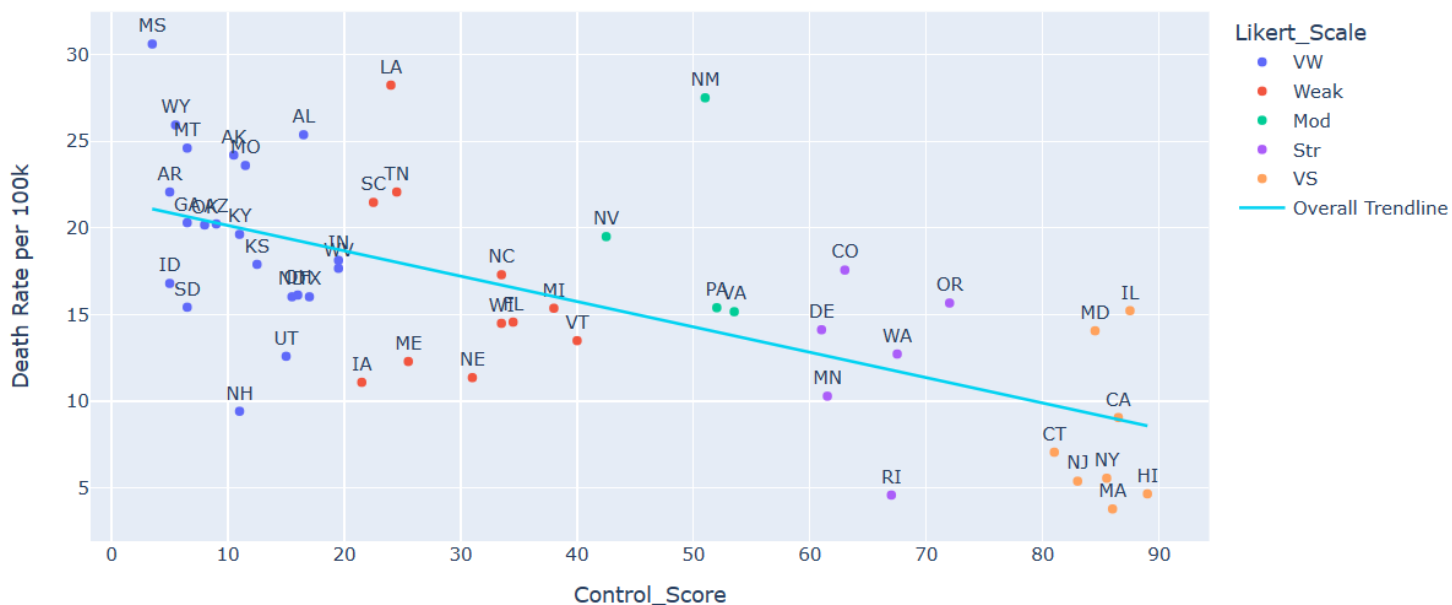
State Death Rate by Firearm-Related Injury



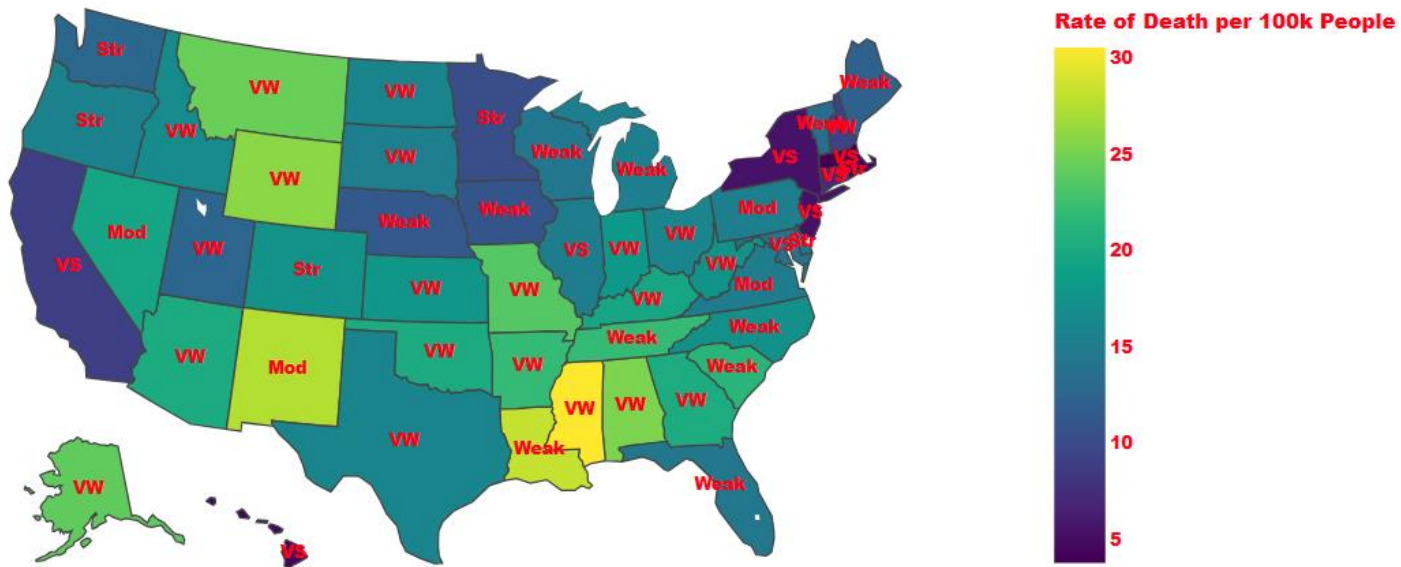
## Conclusion

A Likert Scale of [VW, W, Mod, Str, VS] for [Very Weak, Weak, Moderate, Strong, Very Strong] based on 20 point cuts from 0 to 103 of the Control\_Score values were assigned and then plotted on a scatter plot to give a perspective of similarly rated control states near each other. A least squares regression line was added to emphasize trend.

Control\_Scores vs Death\_Rate



## Rate of Death by Likert Scale



With Likert\_Values on each state, one can compare the color representing Rate of Death with a state's Control Score. We can see the relationship play out between Likert\_Values, Death\_Rates, and geographical location.

### “Do stricter firearm control laws help reduce firearm mortality?”

Higher firearm control states enjoy a lower death rate related to firearm injuries. While there are outliers when observing each group, the trend is clear. For an extended analysis, low death rate and low control score states could be investigated for specific laws that may have more impact on death rate. The same is true for the inverse. Some arguments have been made about high control score states being surrounded by low control score states, but that is outside this analysis' scope.





## References & Code Appendix:

NCHS - VSRR Quarterly provisional estimates for selected indicators of mortality | Data | Centers for Disease Control and Prevention. (2023, July 27). <https://data.cdc.gov/NCHS/NCHS-VSRR-Quarterly-provisional-estimates-for-sele/489q-934x>

- Special Mention to Jiwaidd Hakim(fellow student) for sharing this source in Classroom Slack

Everytown for Gun Safety Support Fund. (2023, May 8). *Gun safety policies save lives*. Everytown Research & Policy. <https://everytownresearch.org/rankings/>

Full Table for Plots

	state	Death_Rate	STUSAB	Likert_Scale	Control_Score
0	AK	24.20	AK	VW	10.5
1	AL	25.37	AL	VW	16.5
2	AR	22.07	AR	VW	5.0
3	AZ	20.23	AZ	VW	9.0
4	CA	9.07	CA	VS	86.5
5	CO	17.57	CO	Str	63.0
6	CT	7.07	CT	VS	81.0
8	DE	14.13	DE	Str	61.0
9	FL	14.57	FL	Weak	34.5
10	GA	20.30	GA	VW	6.5
11	HI	4.67	HI	VS	89.0
12	IA	11.10	IA	Weak	21.5
13	ID	16.80	ID	VW	5.0
14	IL	15.23	IL	VS	87.5
15	IN	18.13	IN	VW	19.5
16	KS	17.90	KS	VW	12.5
17	KY	19.63	KY	VW	11.0
18	LA	28.23	LA	Weak	24.0
19	MA	3.80	MA	VS	86.0
20	MD	14.07	MD	VS	84.5
21	ME	12.30	ME	Weak	25.5
22	MI	15.37	MI	Weak	38.0
23	MN	10.30	MN	Str	61.5
24	MO	23.60	MO	VW	11.5
25	MS	30.60	MS	VW	3.5
26	MT	24.60	MT	VW	6.5
27	NC	17.30	NC	Weak	33.5
28	ND	16.03	ND	VW	15.5
29	NE	11.37	NE	Weak	31.0
30	NH	9.43	NH	VW	11.0
31	NJ	5.40	NJ	VS	83.0
32	NM	27.50	NM	Mod	51.0
33	NV	19.50	NV	Mod	42.5

	<b>state</b>	<b>Death_Rate</b>	<b>STUSAB</b>	<b>Likert_Scale</b>	<b>Control_Score</b>
<b>34</b>	NY	5.57	NY	VS	85.5
<b>35</b>	OH	16.13	OH	VW	16.0
<b>36</b>	OK	20.17	OK	VW	8.0
<b>37</b>	OR	15.67	OR	Str	72.0
<b>38</b>	PA	15.40	PA	Mod	52.0
<b>39</b>	RI	4.60	RI	Str	67.0
<b>40</b>	SC	21.47	SC	Weak	22.5
<b>41</b>	SD	15.43	SD	VW	6.5
<b>42</b>	TN	22.07	TN	Weak	24.5
<b>43</b>	TX	16.03	TX	VW	17.0
<b>44</b>	UT	12.60	UT	VW	15.0
<b>45</b>	VA	15.17	VA	Mod	53.5
<b>46</b>	VT	13.50	VT	Weak	40.0
<b>47</b>	WA	12.73	WA	Str	67.5
<b>48</b>	WI	14.50	WI	Weak	33.5
<b>49</b>	WV	17.67	WV	VW	19.5
<b>50</b>	WY	25.93	WY	VW	5.5

Law Scoring by State can be found in the State\_Scoring.csv