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Rush County Health Status Survey - REDCap Survey and Analysis

## Abstract

Partnerships between academic institutions and county health departments can be mutually beneficial in not only providing students with real world experience, but also providing access to assets to maximize limited resources. Rush County partnered with Indiana University Purdue University (IUPUI) Fairbanks School of Public Health to survey county residents as part of the county's accreditation process. Due to IUPUI's status as an academic institution, the project was able to utilize REDCap as a tool to create, distribute, and analyze data that was collected from over 300 respondents for free. Other publicly available free survey tools have limitations on the number of respondents or do not have the capacity to analyze and organize results.

## Background/Introduction

Rush County, IN is located just outside of central Indiana to the east and is surrounded by its neighbors: Hancock, Shelby, Decatur, Franklin, and Fayette. Currently, the Rush County Public Health Department is involved in a reaccreditation process and has decided to partner with the Indiana University Fairbanks School of Public Health to understand the needs of the community through data collection. Approximately 17,000 people live in Rush County with about 18.3% of the population at or below the poverty line (Data USA, n.d.). The majority of the population identifies as White/Caucasian with 85% of them having graduated from high school and/or pursued higher education. Additionally, statistics have shown that the median household income is about \$48,000 (U.S. Census Bureau, n.d.). Historically, Rush County has had some concerns revolving around substance abuse and gun safety and have committed to implementing policies related to alcohol/opioid consumption and researching individual firearm safety and storage. In 2017, there were three alcohol related deaths and eight drug related deaths. By 2018, there were 37 drug related ED visits and two recorded deaths by firearms (Indiana State Department of Health, n.d.).

## Methodology

For this project, REDCap was the main vehicle for data capture and analysis. The software itself is very intuitive and complex at first look, but after ample exposure to its features it was found to be very useful in the collation/management process. The survey itself was built using the REDCap software where specific questions were constructed to collect demographic, personal, and county data. The survey was then distributed using an in-program tool that provides a link to participants through email. If access to the digital survey was non-existent, paper surveys were made available to accommodate this disparity, which were then uploaded and combined with the digital REDCap surveys. Eventually, a QR-code was developed to provide an additional distributive method. After receiving a considerable number of responses, the REDCap software provided statistical analyses through basic counts, percentages, and bar graphs for visual representations of the data. To ensure the integrity of the results, there was constant back-and-forth feedback between IUPUI and the Rush County representative to ensure the validity of the survey tool. Specifically, questions concerning gun safety and drug use were discussed on October 14<sup>th</sup>, 2018 over a video conference call and the survey was modified accordingly.

## Results

Between September 3rd, 2019 and November 5th, 2019, the REDCap system collected 323 responses, but was only able to utilize 319 entries as 4 responses were incomplete. Roughly 80.9% of respondents were female, and 82.4% of respondents fell between the ages of 30 and 69. The majority of survey participants, 97.2%, identified themselves as Caucasian and roughly 32% reported household incomes of \$75,000 or higher. The responses to the demographic questions are recorded in Table 1 below.

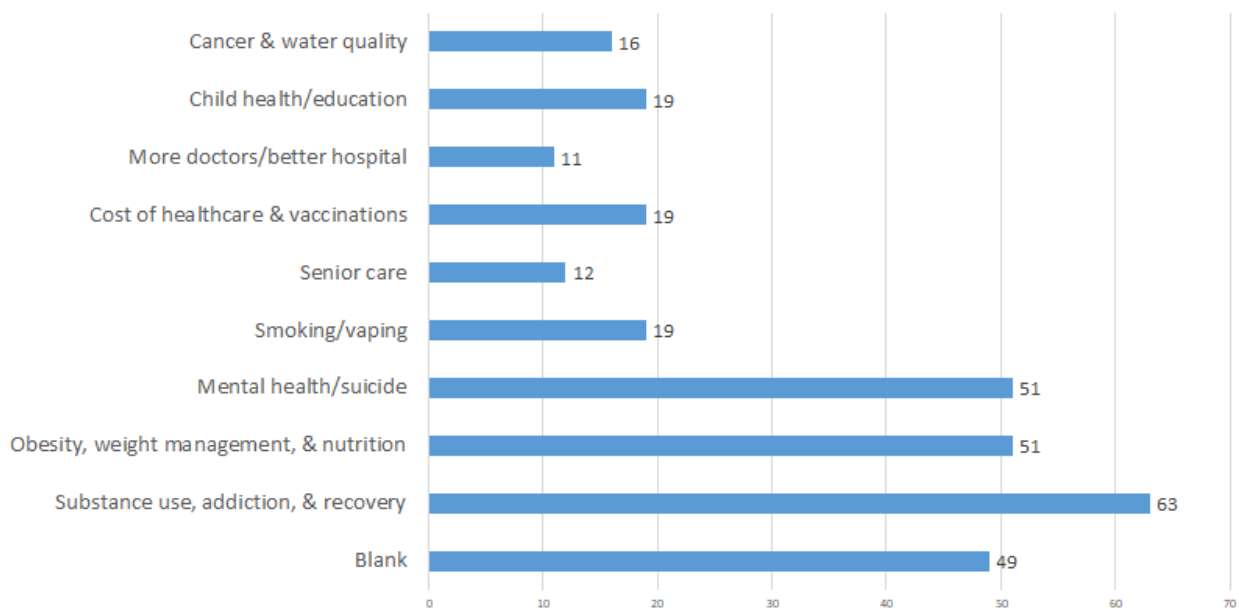
**Table 1. Demographic Survey Results**

Age	Count	Percentage	Household Income	Count	Percentage
under 18	2	0.62%	Less than \$25,000	28	8.83%
18 - 24	8	2.48%	\$25,001 to \$40,000	58	18.30%
25 - 29	13	4.02%	\$40,001 to \$60,000	63	19.87%
30 - 49	140	43.34%	\$60,001 to \$75,000	38	11.99%
50 - 59	67	20.74%	\$75,000 and over	102	32.18%
60 - 69	56	17.34%	Prefer not to answer	28	8.83%
70 - 79	20	6.19%	<b>Living Arrangements</b>		
80 and over	17	5.26%	Married	211	66.14%
<b>Gender</b>			Single, Head of Household	76	23.82%
Female	258	80.88%	Cohabiting	22	6.90%
Male	61	19.12%	Prefer not to answer	10	3.13%
<b>Employment Status</b>			<b>Highest Education Achieved</b>		
Employed full-time	205	63.66%	Did not graduate high school	10	3.10%
Employed part-time	36	11.18%	High school diploma/GED	132	40.87%
Employed part-time but seeking full employment	3	0.93%	Technical school	23	7.12%
Unemployed by choice	14	4.35%	Some college or associate degree	8	2.48%
Unemployed but looking	7	2.17%	College graduate	110	34.06%
Retired	57	17.70%	Postgraduate degree	40	12.38%
<b>Health Insurance Source</b>			<b>Ethnicity</b>		
Medicare	59	18.27%	Caucasian/White	313	97.20%
Market Place	19	5.88%	Hispanic/Latino	1	0.31%
Healthy Indiana Plan	14	4.33%	African American	0	0.00%
Medicaid	5	1.55%	Asian	4	1.24%
Employee/Private Insurance	208	64.40%	Native American	0	0.00%
VA insurance	3	0.93%	Multiple	2	0.62%
No insurance	15	4.64%	Prefer not to answer	2	0.62%

The remainder of the survey questions focused on inquiring about residents' health status such as diagnosis of chronic diseases, access to healthcare services, mental and physical health status, alcohol consumption, gun storage within the home, and use of illegal or prescription drugs that were not prescribed to themselves. These figures were used to create visual representations and can be accessed through the link provided in the appendix. The last question in the survey asked the survey participants to suggest the next health priority that the Rush County Public Health Department should address. The top concern was identified to be

substance abuse, drug addiction, and recovery by 63 respondents, while 51 respondents identified mental health and suicide as well as obesity, weight management, and nutrition education as the next highest priority they would like addressed. Smoking/vaping, health education for children, rising cost of healthcare, and access to vaccinations were tied for the next highest concern. The last three concerns included high rates of cancer with inquiries regarding the water quality, education on how to care for seniors, and requests for more doctors or better hospital facilities. These are demonstrated in Figure 2 below.

Figure 2. Next top health priority



### Discussion

After the survey was closed to begin the analysis portion of the project, there were some key findings that required additional follow-up. It was discovered that the majority of the survey responses were from women living in Rushville. With this in mind, it would have been helpful to have more responses from men, and it is possible that if there had been an even distribution between the two genders, there might have been more variability within the data. This is not to say that the remaining results are to be deemed invalid or less credible, but the data could have displayed stronger correlations between certain variables and/or brought attention to other

issues that needed to be properly addressed at the local level. Similar to the fact that more women responded than men, a less diverse response pool could have provided more variability within the data, thus increasing the credibility of the data and possibly providing new statistical incites regarding the county's social determinants of health. When examining the overall health of the county, a majority of the residents believed that their health was either "Good" or "Very Good" (75% of respondents). However, these same respondents admitted that at one point or another, they had been diagnosed with diabetes (32%), high cholesterol (57.1%), and/or high blood pressure (76.9%). It should be noted that this question allowed respondents to "check all that apply", meaning that many of the answers reveal comorbid relationships between the diseases/diagnoses. Therefore, it may be difficult to ascertain the respondents' understanding of "healthy." Key questions to consider involve whether or not they understand "healthy" to mean the absence of infirmity or if they do not classify any of these ailments as diseases. Furthermore, 54.5% of respondents did not answer this question due to the fact that, they have not experienced any of these ailments or they declined to release their personal health information. The question inquiring about the overall health of residents stemmed from a similar question posted by the Behavioral Risk Factor Surveillance System (BRFSS) and while information is self-reported by respondents, the compiled data report has been found to be reliable.

### Limitations

While gathering survey data the team did experience a few limitations. The survey was given out on paper copies to reach more Rush County community members. It was found that some community members may not have access to a computer or smartphone. The online version of the survey form required an answer for all of the questions. When the surveys were distributed on paper, multiple participants left questions unanswered. Participants may have accidentally skipped a question or they may have felt uncomfortable answering some of the

questions. Some items were missing once all of the paper surveys were entered into REDCap. The most common question left unanswered was the weight and BMI question. This gave incomplete survey results since there was not the same number of answers for each question.

When the survey was first distributed electronically it was sent out via email and text messaging. A QR survey code was developed halfway through the distribution period. This created easier access to the survey. This was a limitation because it would have been more beneficial to have the QR survey code throughout the entire distribution period. This could have helped increase the number of responses. The distribution period itself was only about two months. This time restraint was due to the IUPUI semester schedule. It would have been more beneficial to keep the survey open longer to obtain more responses.

The survey population could be considered a convenience sample. Most of the responses came from white women in Rushville. Rushville is the largest city in Rush County. About 79% of the survey respondents lived in Rushville. This was a limitation because the responses covered a very small demographic. There were very few responses from the smaller cities in Rush County, roughly 21% in total from non-Rushville residents. A larger demographic would have given a better representation of the county's thoughts around health.

### Recommendations

There are a few recommendations that could be put into place the next time this survey is conducted. It would be beneficial to keep the survey open for a longer period of time. This would allow more responses and data to analyze. More responses could also help paint a clearer picture of the entire county. The survey was created in English and although most of Rush County speaks English, there was a small percentage of residents that were non-English speakers. In the future the survey could also be made in other languages, so every resident in the county has a chance to take the survey. Another recommendation would be to use survey questions that are from the Behavioral Risk Factor Surveillance System (BRFSS). This would

give Rush County exact comparisons between their results and the statewide BRFSS data. Some of comparison data used during this survey distribution period was not directly comparable. For future projects it would be best to reach out to Rush County Health Department to see what the organization thought was done well and what could be improved. IUPUI and Rush County Health Department have partnered in the past. It is important to be transparent with communication between the two organizations.



## References

Data USA. (n.d.) Data USA: Rush County, IN. Available from url:

<https://datausa.io/profile/geo/rush-county-in>

Indiana State Department of Health. (n.d.) Rush County Profile. Available from url:

<https://www.in.gov/isdh/files/CountyProfilesOfOpioidUse2017.pdf>

U.S. Census Bureau. (n.d.) U.S. Census Bureau: Rush County, Indiana. Available from url:

<https://www.census.gov/quickfacts/rushcountyindiana>

## Appendix

Table 2. Rush County Survey 2019 Data (N=323)					
	Count	Percentage		Count	Percentage
<b>Health Status</b>			<b>Have Access To</b>		
Excellent	15	4.66%	Reliable Transportation	298	92.26%
Very Good	91	28.26%	Mental Health Care	244	75.54%
Good	151	46.89%	Nutritional Education	233	72.14%
Fair	50	15.53%	Weight Management Education	225	69.66%
Poor	11	3.42%	Substance Use Treatment	217	67.18%
Don't Know/Not Sure	4	1.24%	<b>Physical Health Not Good (Last 30 Days)</b>		
<b>Diagnosed At Any Time</b>			0 - 5 times	252	80.25%
Diabetes	47	15.36%	6 - 10 times	18	5.73%
High Cholesterol	84	27.45%	11 - 15 times	13	4.14%
High Blood Pressure	113	36.93%	16 - 20 times	4	1.27%
<b>Physical Activity (Last 30 Days)</b>			21 - 25 times	3	0.96%
Every Day	43	13.40%	26+ times	24	7.64%
Five Times a Week	22	6.85%	<b>Mental Health Not Good (Last 30 Days)</b>		
Three Times a Week	53	16.51%	0 - 5 times	230	73.48%
Twice a Week	65	20.25%	6 - 10 times	19	6.07%
Once a Week	71	22.12%	11 - 15 times	20	6.39%
Never	67	20.87%	16 - 20 times	11	3.51%
<b>Alcohol Consumption</b>			21 - 25 times	6	1.92%
Not At All	155	48.14%	26+ times	27	8.63%
Every Day	7	2.17%	<b>Current Smoking Frequency (Vaping Frequency)</b>		
2 - 3 Times a Week	33	10.25%	Not At All	279 (311)	86% (96%)
4 - 5 Times a Week	5	1.55%	Every Day	31 (8)	10% (2%)
6 Times a Week	1	0.31%	Some Days	13 (4)	4% (1%)
1 - 4 Times a Month	121	37.58%	<b>Gun Storage at Home</b>		
<b>Illegal Drug/Non Prescribed Drug Consumption</b>			No Guns in Home	144	46.45%
Never	265	83.33%	Unloaded & Locked Away	83	26.77%
1 - 2 Times a Week	4	1.26%	Unloaded & Easily Accessible	34	10.97%
3 - 4 Times a Week	2	0.63%	Loaded & Locked Away	32	10.32%
5+ Times a Week	1	0.31%	Loaded & Easily Accessible	17	5.48%
0 Times in Last 30 Days	46	14.47%			

Survey results can be found in PowerPoint presentation form at the following link:

[https://docs.google.com/presentation/d/1hAFqDNrUBxKijlF8xl\\_viDoOdgZpOI8PUF\\_UynMOPY/edit#slide=id.g78e740266b\\_0\\_42](https://docs.google.com/presentation/d/1hAFqDNrUBxKijlF8xl_viDoOdgZpOI8PUF_UynMOPY/edit#slide=id.g78e740266b_0_42)