

Hawaii Department of Health

Adult Mental Health Division (AMHD) and the Alcohol and Drug Abuse Division (ADAD)

Using Data to Inform Practice: The Role of Overdose Data to Action (OD2A) in Advancing Care in Hawai'i

An introduction to and a practice demonstration of how to develop a data dashboard using the National Survey for Drug Use and Health (NSDUH) data

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Goals

The goals of this webinar will be to:

1. Provide an overview of the NSDUH and dataset structure
2. Provide a walkthrough of navigation and access to the data on the RDAS website which houses the NSDUH
3. Provide an overview of how to automate downloading this data into tables using the R statistical package



Primary Objectives of NSDUH

The primary objectives of NSDUH are to:

- Provide accurate data on the level and patterns of alcohol, tobacco, substance use and misuse;
- Track trends in the use of alcohol, tobacco and various types of substances;
- Assess the consequences of substance use and misuse; and
- Identify those groups at high risk for substance use and misuse.



Visit the Hawaii Behavioral Health Dashboard

<https://www.hawaii.edu/aging/hbhd/>



Who Administers NSDUH: SAMSHA

The Substance Abuse and Mental Health Services Administration (SAMHSA) provides leadership and a federal focus for the nation's mental health and substance abuse treatment and prevention programs. NSDUH helps facilitate this mission by monitoring the nature and extent of substance use in the United States, as well as the consequences of this use.



What is the NSDUH Dataset?

- The National Survey on Drug Use and Health (NSDUH) provides up-to-date information on age 12 and older, tobacco, alcohol, and drug use, mental health and other health-related issues in the United States.



When Did the NSDUH Dataset Start?

- NSDUH began in 1971 and is conducted every year in all 50 states and the District of Columbia.
- Individuals interviewed are aged 12 and older.
- This year almost 70,000 people will be interviewed.



Why the NSDUH Dataset

The NSDUH dataset is chosen because it is a large national dataset which has valuable data for all states which includes polysubstance use and co-occurring disorders. It is also an underutilized dataset as it is difficult to navigate and cumbersome to download data from the RDAS website.

A survey conducted of other states' data dashboards related to opioid use did not identify the use of NSDUH data. Initial consultations with OD2A peer jurisdictions indicate that the NSDUH dataset would be a useful addition to their own dashboards.

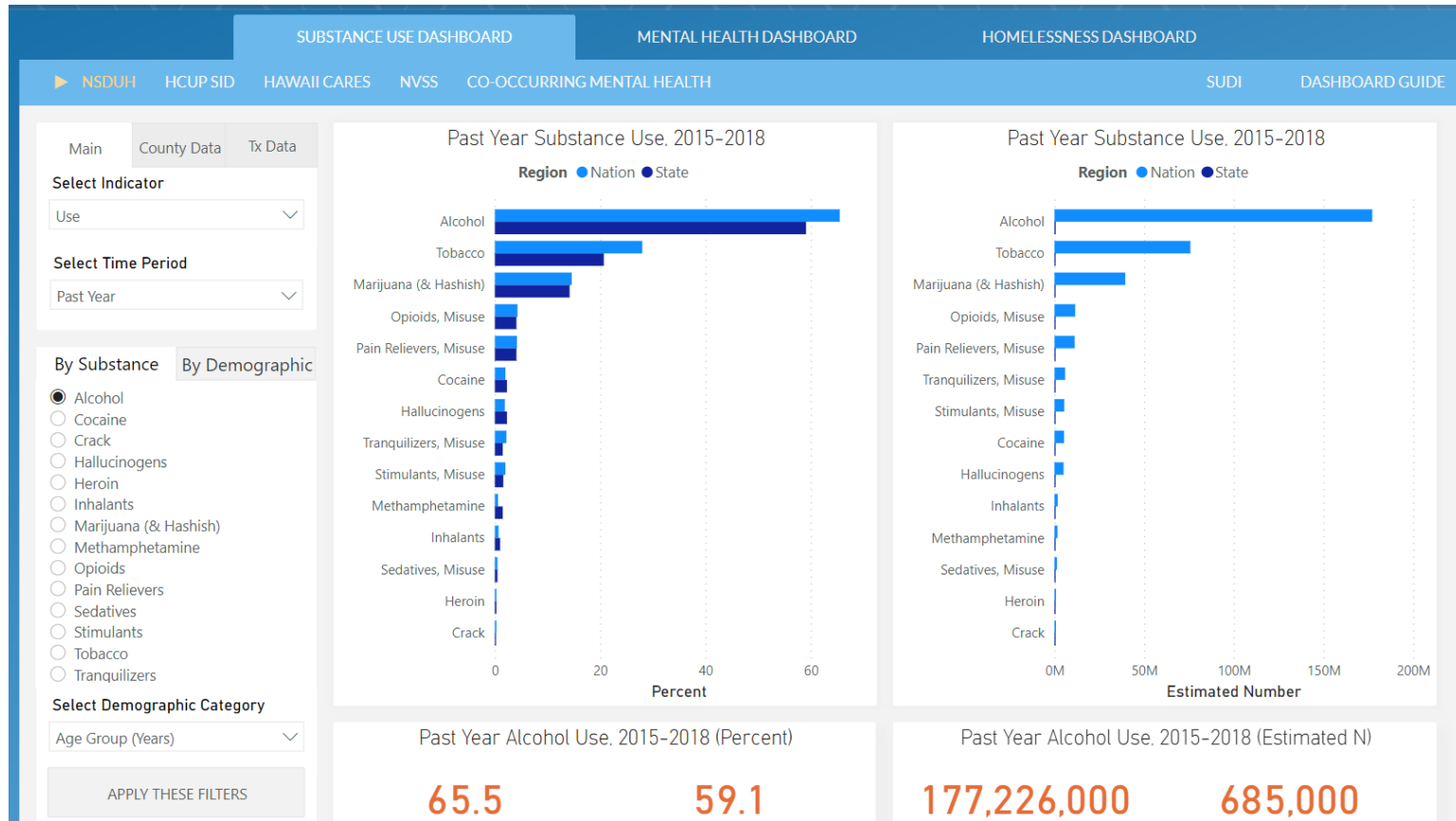


How Can It Be Used

- Information from NSDUH is used to support prevention and treatment programs, monitor substance use trends, estimate the need for treatment and inform public health policy.



NSDUH Variables Used by ADAD

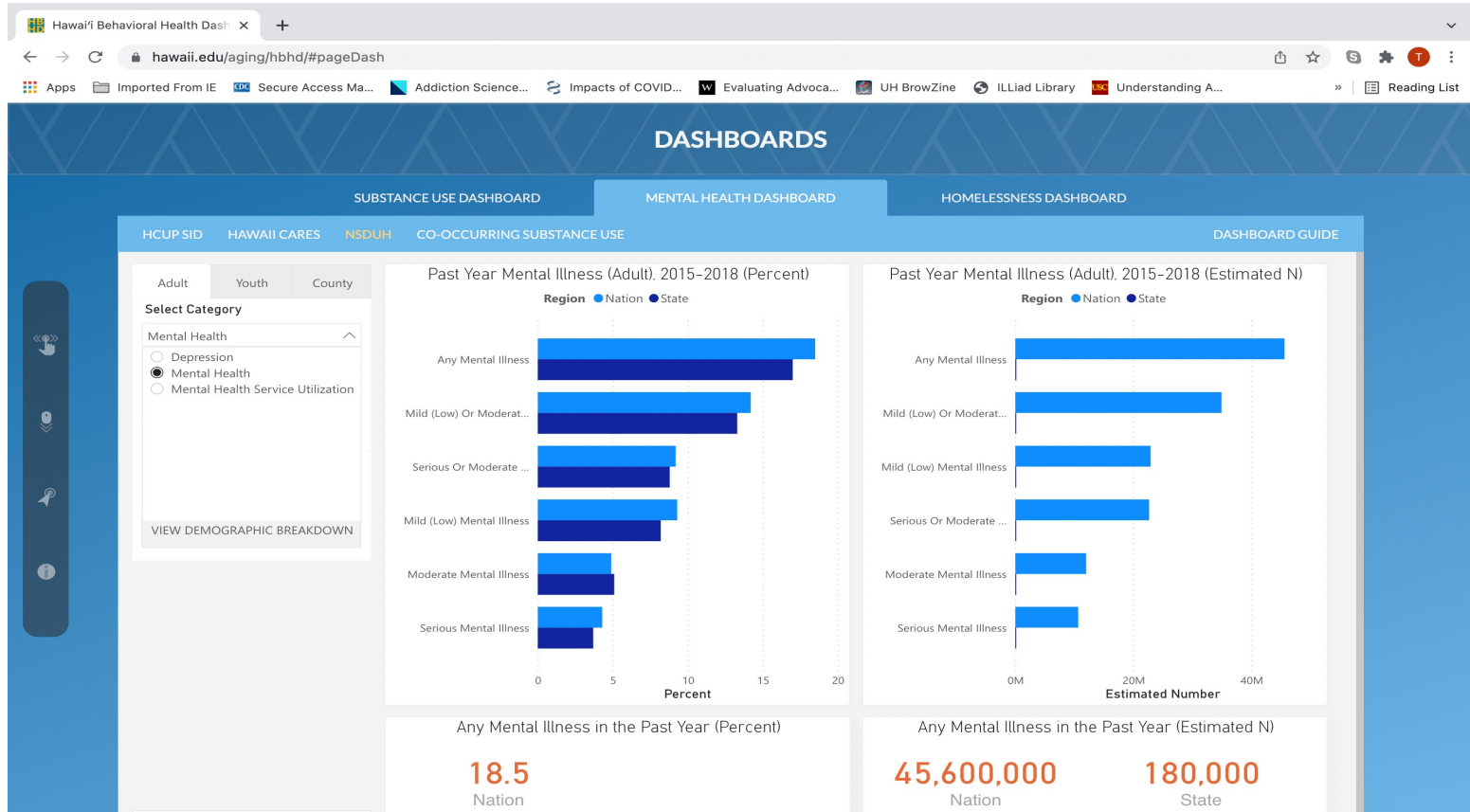


NSDUH Variables Used by ADAD

- Substance type – alcohol, methamphetamines, opioids, tobacco, etc.
- Substance use by national and state
- Demographics



NSDUH Variables Used by AMHD



NSDUH Variables Used by AMHD

- Mental health – depression and mental illness
- Mental health by adult and by youth
- Suicidal ideation by adult and by youth
- Demographics



Caution: Data Wrangling Ahead

What:

“the process of transforming and [mapping data](#) from one "[raw](#)" data form into another [format](#) with the intent of making it more appropriate and valuable for a variety of downstream purposes such as analytics.”

Why:

See SAMSHA [“What is the difference between NSDUH public- and restricted-use data?”](#)

SAMSHA made a tool for restricted data called RDAS to view combinations of variables

We need to “scrape” that tool to get the data we need because the Public Use Files (PUF) do not have location

How:

Separate out the data wrangling step from the dashboard/data visualization/analysis step:

Scrape RDAS: 3 Examples

Create and Publish a dashboard: 3 Examples



Preliminary Step: Navigate the SAMHSA RDAS Website to Find and Download Data

SAMHDA
Substance Abuse & Mental Health Data Archive

National Survey on Drug Use and Health: 2-Year RDAS (2018 to 2019)

Row Variable: **STNAME** State Name

Column Variable: **ALCEVER** Ever Had Drink Of Alcoholic Beverage

Control Variable: **IROXCNANYR** Any Oxycontin Recency - Imputation Revised

Weight Variable: **DASWT_1**: Das Analysis Weight Divided By 2

Run Chi-Square Test?

Run Crosstab

CROSSTAB RESULTS

VIEW OPTIONS
 Crosstab Table(s) Chi-Square Test Chart(s)

TABLE DISPLAY OPTIONS (show/hide)
 Weighted Count Total % Row % Column % Confidence Intervals Standard Errors

ANY OXYCONTIN REGENCY - IMPUTATION REVISED: 1 - WITHIN THE PAST 12 MONTHS

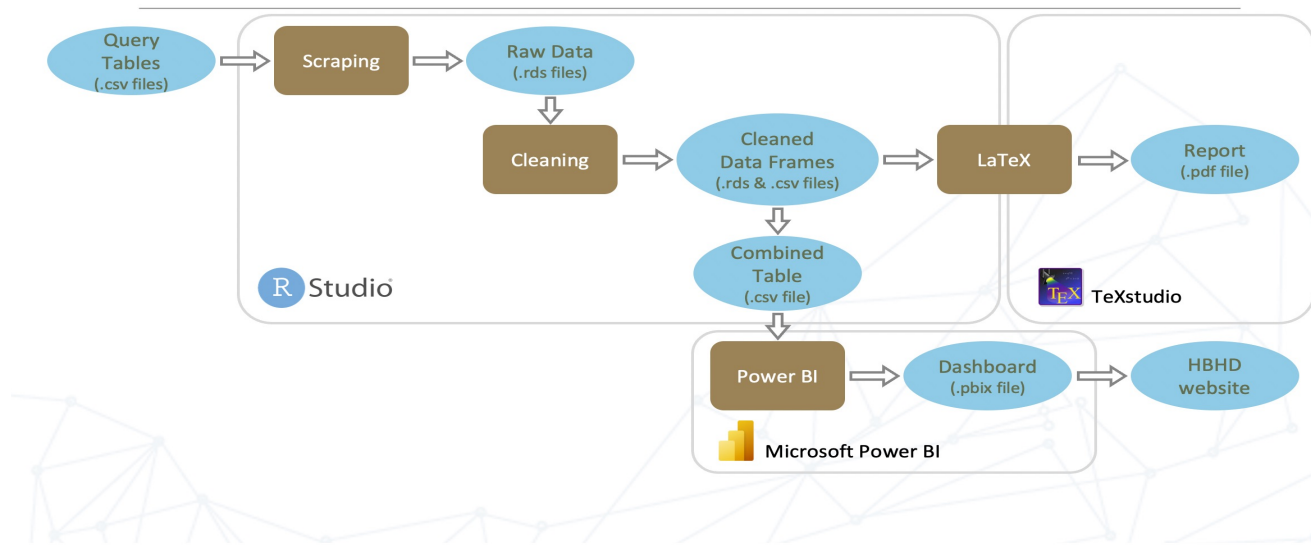
ANY OXYCONTIN REGENCY - IMPUTATION REVISED: 1 - Within the past 12 months		EVER HAD DRINK OF ALCOHOLIC BEVERAGE					
STATE NAME		Total	1 - Yes	2 - No	85 - BAD DATA Logically assigned	94 - DON T KNOW	97 - REFUSED
HAWAII	Weighted Count	44,000	41,000	3,000	0	0	0
	Count SE	8,000.0	8,000.0	1,000.0	0.0	0.0	0.0
	Column %	100.00%	100.00%	100.00%	N/A	N/A	N/A
	Column % SE	0.00%	0.00%	0.00%	N/A	N/A	N/A

EXPORT
 this table as png **full crosstab as csv**

https://rdas.samhsa.gov/#/survey/NSDUH-2018-2019-RD02YR?column=ALCEVER&control=IROXCNANYR&filter=STNAME%3DHAWAII&results_received=true&row=STNAME&run_chisq=false&weight=DASWT_1



Potential Problem: Data Wrangling Combined with Reports, Dashboard Creation, and Analysis



Best Practice: 2 Distinct Steps

Step 1: Extract,
Tranform, and Load
ETL

- Download data
- Clean
- Architect for speed/PII

Step 2: Actionable
Data

- Reports (e.g. LaTeX, Crystal, MS Access Reports)
- Dashboards (e.g. Power BI, Tableau, R Shiny)
- Analysis (e.g. SAS, R, SPSS, STATA)



3 Tools to Scrape RDAS

Power Automate

- **Web Scraping Made EASY With Power Automate Desktop - For FREE & ZERO Coding**
- <https://www.youtube.com/watch?v=DgBZiBlgh3w>

R

- **Sample R Code by shows how to communicate with the API for (RDAS NSDUH)**
- **Joel Nicolow with contributions from Bobby Do, Sarah Yasuda, Jaclyn Topinio**

Python

- **Python scripting to automate fetching data from RDAS**
- https://git.noelle.codes/noelle/python_rdas



Use Scraper or Manual Process to Create Combined File

Combine the data into large csv files, database, SAS dataset, or other format of your choice.

Recommendation:

Choose format that is easily accessible by any analysis or data viz tool (e.g. SQL Server database or csv file)

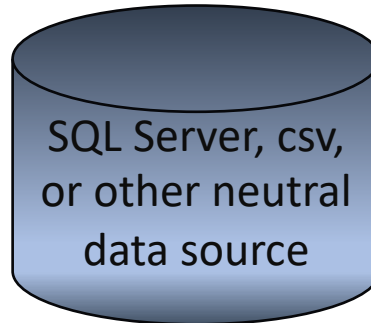
SQL Server and other “real” databases make it easier to keep clean, secure, and high performing

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Indicator	Substance type	category	type_val	year	time_peric	geographi	percent_v	upper_ci	lower_ci	estimated	count_se	file_name			
2	Needed b	Alcohol	Total	Total	2016-201	Past Year	Maui	5.59	7.49	4.15	7251		c7_overall_t	txgap_yr	substate	clean.csv
3	Needed b	Illicit Drug	Total	Total	2016-201	Past Year	Maui	2.35	3.4	1.62	3048		c7_overall_t	txgap_yr	substate	clean.csv
4	Needed b	Substance	Total	Total	2016-201	Past Year	Maui	7.27	9.56	5.5	9430		c7_overall_t	txgap_yr	substate	clean.csv
5	Needed b	Alcohol	Total	Total	2016-201	Past Year	Kauai	5.74	8.12	4.02	3220		c7_overall_t	txgap_yr	substate	clean.csv
6	Needed b	Illicit Drug	Total	Total	2016-201	Past Year	Kauai	2.07	3.04	1.4	1161		c7_overall_t	txgap_yr	substate	clean.csv
7	Needed b	Substance	Total	Total	2016-201	Past Year	Kauai	6.67	9.02	4.89	3741		c7_overall_t	txgap_yr	substate	clean.csv
8	Needed b	Alcohol	Total	Total	2016-201	Past Year	Honolulu	5.43	6.64	4.42	42172		c7_overall_t	txgap_yr	substate	clean.csv
9	Needed b	Illicit Drug	Total	Total	2016-201	Past Year	Honolulu	2.03	2.71	1.53	15766		c7_overall_t	txgap_yr	substate	clean.csv
10	Needed b	Substance	Total	Total	2016-201	Past Year	Honolulu	6.69	8.15	5.47	51958		c7_overall_t	txgap_yr	substate	clean.csv
11	Needed b	Alcohol	Total	Total	2016-201	Past Year	Hawaii Isla	5.51	7.45	4.05	8629		c7_overall_t	txgap_yr	substate	clean.csv
12	Needed b	Illicit Drug	Total	Total	2016-201	Past Year	Hawaii Isla	2.43	3.42	1.73	3806		c7_overall_t	txgap_yr	substate	clean.csv
13	Needed b	Substance	Total	Total	2016-201	Past Year	Hawaii Isla	7.05	9.21	5.37	11041		c7_overall_t	txgap_yr	substate	clean.csv
14	Needed b	Alcohol	Total	Total	2016-201	Past Year	State of Hi	5.47	6.51	4.59	61218		c7_overall_t	txgap_yr	substate	clean.csv
15	Needed b	Illicit Drug	Total	Total	2016-201	Past Year	State of Hi	2.12	2.7	1.67	23726		c7_overall_t	txgap_yr	substate	clean.csv
16	Needed b	Substance	Total	Total	2016-201	Past Year	State of Hi	6.8	8.01	5.76	76103		c7_overall_t	txgap_yr	substate	clean.csv
17	Use	Marijuana	Total	Total	2016-201	Past Year	Maui	21.34	26.16	17.2	27681		c2_overall_u	se_yr	substate	clean.csv
18	Use	Cocaine	Total	Total	2016-201	Past Year	Maui	2.81	4.45	1.76	3645		c2_overall_u	se_yr	substate	clean.csv
19	Use	Heroin	Total	Total	2016-201	Past Year	Maui	0.32	0.71	0.15	415		c2_overall_u	se_yr	substate	clean.csv
20	Use	Methampl	Total	Total	2016-201	Past Year	Maui	1.3	2.5	0.67	1686		c2_overall_u	se_yr	substate	clean.csv
21	Use	Pain Reliev	Total	Total	2016-201	Past Year	Maui	3.37	4.53	2.5	4371		c2_overall_u	se_yr	substate	clean.csv
22	Use	Marijuana	Total	Total	2016-201	Past Year	Kauai	16.28	21.34	12.23	9132		c2_overall_u	se_yr	substate	clean.csv
23	Use	Cocaine	Total	Total	2016-201	Past Year	Kauai	2.26	3.87	1.31	1268		c2_overall_u	se_yr	substate	clean.csv
24	Use	Heroin	Total	Total	2016-201	Past Year	Kauai	c.s.	c.s.	c.s.	c.s.		c2_overall_u	se_yr	substate	clean.csv
25	Use	Methampl	Total	Total	2016-201	Past Year	Kauai	1.37	2.71	0.69	768		c2_overall_u	se_yr	substate	clean.csv
26	Use	Pain Reliev	Total	Total	2016-201	Past Year	Kauai	3.62	4.92	2.65	2031		c2_overall_u	se_yr	substate	clean.csv
27	Use	Marijuana	Total	Total	2016-201	Past Year	Honolulu	12.17	14.06	10.5	94519		c2_overall_u	se_yr	substate	clean.csv



Single Source of Truth

Cleaned Data Source Can Be Used By Many Types of Tools



Example: 3 Tools to Create Dashboards YOU NEED A SERVER

Power BI SERVER

- https://www.tutorialspoint.com/power_bi/power_bi_sharing_dashboards.htm

Tableau SERVER

- <https://www.tableau.com/products/server>
- <https://www.tableau.com/products/public>

R Shiny SERVER

- <https://shiny.rstudio.com/>



Future Directions

Opioids, SUDs,
Mental Health, Polysubstance Use,
Co-occurring Disorders



Mental Health

About 115 million opioid prescriptions are distributed each year in the US.

About 60 million (51.4%) of all opioid prescriptions are received by adults with a mental health disorder.

A sample of autopsy records from 2016 in Honolulu county found that 56 victims died of an overdose. Of which 68% had a history of mental illness.



Co-occurring Disorders Among Adults in the US

- 46.6 million have a mental illness
- 19.7 million have a substance use disorder
- 9.2 million had both a mental illness and a substance use disorder
- 1.5 million with a SMI have misused opioids in the past year
- 550,000 were diagnosed with a SMI and an opioid use disorder.



Polysubstance Use

The 2019 National Survey on Drug Use and Health indicated past-month heavy Alcohol Use was related to past-year:

- 7.2 million marijuana use
- 1.5 million opioid misuse
- 1.8 million cocaine use
- 269,000 methamphetamine use

US Adults with multiple Substance Use Disorders (SUDs):

- 45.8% Tobacco Use Disorder
- 63.6% Alcohol Use Disorder
- 87.5% Opioid Use Disorder
- 93.8% Heroin Use Disorder
- 90.2% Cocaine Use Disorder
- 73.8% Cannabis Use Disorder



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Mahalo and Questions

