NaloxTrac Data Workflow

About

This document visualizes the data workflow for the Erie County Department of Health's (ECDOH) Naloxtrac web application. This workflow details all external data sources that feed into the workflow (inputs), all created programs* that are used to clean and analyze the inputs (data processing) and all of the final data structures that are created and used for the Naloxtrac (outputs) that are inserted into the final program, ***"Naloxtrac V1.Rmd"***, that is used for building and deploying the Naloxtrac web application to the ECDOH's private Shiny Server. Each data source is assigned a letter (Ⓐ) to identify which program it is utilized in. Each created program is assigned a number (❶) to identify with data source it processes.

All created programs are housed in a docking program, ***"NaloxTracDock.R"***, to automate and streamline the Naloxtrac's building process. The docking program is responsible for maintaining data integrity across data sources and allowing the final program to build and deploy the Naloxtrac application after specified criteria is satisfied. The docking program houses all of the secondary programs needed to clean and analyze data in a step-wise fashion (I). When a secondary program is completed, the workflow returns to the docking program to prepare for the next secondary program (II). When all secondary programs are completed, the workflow returns to the docking program to launch the final program, ***"Naloxtrac V1.Rmd"*** (III), to build and deploy the completed Naloxtrac application (IV).

External Data Sources (Inputs)

Narcan Wall Boxes Data Ⓐ ❶ 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"Narcan Wall Boxes, Orders + Refills"
Ownership:	Erie County Department of Health

Erie County ODMAP Overdose Data Ⓑ 3 4

Type:	Password Protected Excel Workbook
Workbook Name:	"Erie Overdose Data (<Year>) <Date>"
Sheet Name:	"<Year> Data"
Ownership:	New York-New Jersey HIDTA

Text-For-Narcan Data Ⓒ 2 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"Mail Narcan_text line"
Ownership:	Erie County Department of Health

SDL (Supply Distribution Logs) Data Ⓓ 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"SDL Supply Distribution Logs"
Ownership:	Erie County Department of Health

Outreach Events Data Ⓔ 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"Outreach Narcan"
Ownership:	Erie County Department of Health

Narcan Kit Refills - Rath & Soc. Services Data Ⓕ 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"Rath Bldg Refills"
Ownership:	Erie County Department of Health

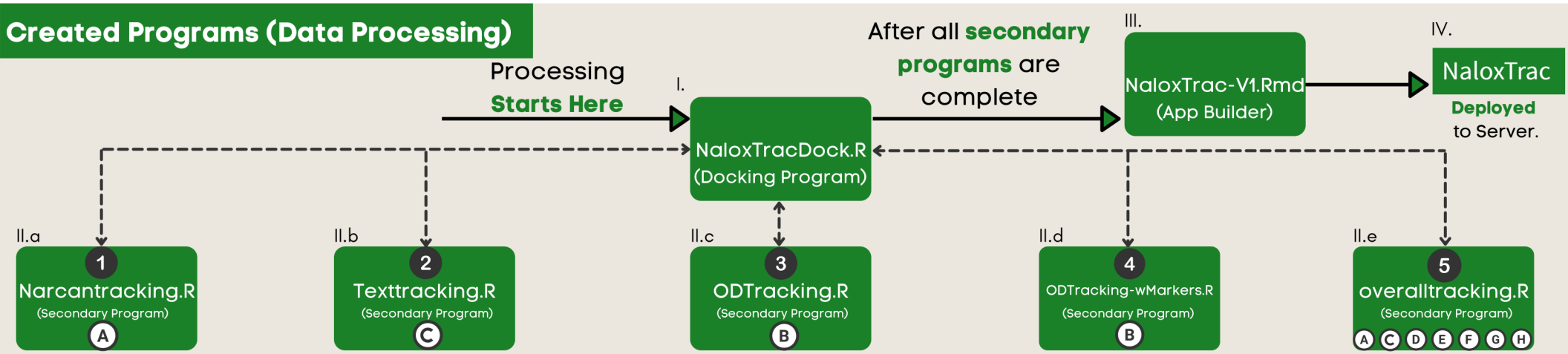
Narcan Kit Refills - Rath Building Data Ⓖ 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"Refills, Rath Bldg 95 Franklin"
Ownership:	Erie County Department of Health

Narcan Kit Refills - Soc. Services Data Ⓗ 5

Type:	Google Drive Spreadsheet
Workbook Name:	"Naloxone Tracking (Responses)"
Sheet Name:	"Refills, Soc Serv 158 Pearl"
Ownership:	Erie County Department of Health

Created Programs (Data Processing)



Final Data Structures (Outputs)

1 Narcantracking.R (Secondary Program) A

Narcan Box Kit Master

File Type: RDS file (Single R Data Object)

Description: A raw version of the Narcan Wall Boxes Data set that's extracted from the ECDOH Google Drive and saved locally as a backup to update the Narcan Wall Box Data used for the Naloxtrac

Date Box Chart

File Type: RDS file (Single R Data Object)

Description: An interactive (plotly) bar chart showing the total amount of Narcan Wall Boxes distributed by the ECDOH since 2019.

Date Kit Chart

File Type: RDS file (Single R Data Object)

Description: An interactive (plotly) bar chart showing the total amount of Narcan Kits distributed by the ECDOH since 2019.

Narcan Box Kit Provided

File Type: CSV file (Comma-Separated Values Text File)

Description: A cleaned, modified, and tidy version of the Narcan Box Kit Master data set that has been geo-processed and is used to populate the Narcan maps in the Naloxtrac.

2 Texttracking.R (Secondary Program) C

Text For Narcan Master

File Type: RDS file (Single R Data Object)

Description: A raw, de-identified, version of the Text-for-Narcan Data set that's extracted from the ECDOH Google Drive and saved locally as a backup to update the Text-for - Narcan Data used for the Naloxtrac

TFN Date Graph

File Type: RDS file (Single R Data Object)

Description: An interactive (plotly) bar chart showing the total amount of Narcan distributed by the ECDOH since the beginning of the Text-for-Narcan program.

Text for Narcan Geo

File Type: RDS file (Single R Data Object)

Description: A cleaned, modified, and tidy version of the Text for Narcan Master data set that has been geo-processed and is used to populate the Text-for-Narcan map points in the Naloxtrac Narcan maps.

Inner City Geo

File Type: RDS file (Single R Data Object)

Description: A cleaned, modified, and tidy version of the Text for Narcan Master data set that has been filtered to only include select inner-city Buffalo zip codes, geo-processed, and is used to populate the Text-for-Narcan maps with zip code shapes in the Naloxtrac.

Text For Narcan Data

File Type: CSV file (Comma Sep. Value File)

Description: A cleaned, modified, and tidy version of the Text for Narcan Master data set that is used to populate the Narcan map tooltips and chart texts in the Naloxtrac.

TFN City Data

File Type: CSV file (Comma Sep. Value File)

Description: A cleaned, modified, and tidy version of the Text for Narcan data set that has been summarized by City for the Text-for-Narcan Summary Table in the Naloxtrac.

3 ODTracking.R (Secondary Program) B

OD Geo

File Type: RDS file (Single R Data Object)

Description: A cleaned, modified, and tidy version of the Erie County ODMAP Overdose data set that has been geo-processed, and is used to populate the Narcan maps in the Naloxtrac with zip code shapes.

Final Data Structures (Outputs - cont.)

4 ODTracking-wMarkers.R (Secondary Program) B

Complete ODMAP Master

File Type: RDS file (Single R Data Object)

Description: A raw, de-identified, version of the Erie County ODMAP Overdose Data set that's extracted from the ECDOH Google Drive and saved locally as a backup to update the Complete ODMAP Data set for an upcoming addition to the Naloxtrac

OD Geo Points

File Type: RDS file (Single R Data Object)

Description: A cleaned, modified, and tidy version of the Erie County ODMAP Overdose data set that has been geo-processed with individual addresses removed and will be used to populate an upcoming version of the Naloxtrac maps with individual map points of OD locations. **Maps with this sensitive data will be geo-restricted to protect against unintentional victim identification**

OD Start Date

File Type: RDS file (Single R Data Object)

Description: A calculated date that's obtained by pulling the minimum OD date in the Complete ODMAP Master data set. This is a string (text) value that is saved and used in various places in the Naloxtrac. **This has been programmed to ensure the accuracy of legend/key descriptions and tooltips regardless of the data that is input into the workflow.**

5 overalltracking.R (Secondary Program) A C D E F G H

SDL Master

File Type: RDS file (Single R Data Object)

Description: A cleaned, tidy, and modified version of the SDL (Supply Distribution Log) Data set extracted from the ECDOH Google Drive and saved locally to be used in calculating the total amount of Narcan ECDOH has distributed overall by zip code.

Outreach Master

File Type: RDS file (Single R Data Object)

Description: A cleaned, tidy, and modified version of the Outreach Events Data set extracted from the ECDOH Google Drive and saved locally to be used in calculating the total amount of Narcan ECDOH has distributed overall by zip code.

Rath 1 Master

File Type: RDS file (Single R Data Object)

Description: A cleaned, tidy, and modified version of the Narcan Boxes - Rath & Soc. Services Data set extracted from the ECDOH Google Drive and saved locally to be used in calculating the total amount of Narcan ECDOH has distributed overall by zip code.

Rath 2 Master

File Type: RDS file (Single R Data Object)

Description: A cleaned, tidy, and modified version of the Narcan Kit Refills - Rath Building Data set extracted from the ECDOH Google Drive and saved locally to be used in calculating the total amount of Narcan ECDOH has distributed overall by zip code.

Soc Master

File Type: RDS file (Single R Data Object)

Description: A cleaned, tidy, and modified version of the Narcan Kit Refills - Soc. Services Data set extracted from the ECDOH Google Drive and saved locally to be used in calculating the total amount of Narcan ECDOH has distributed overall by zip code.

All Narcan Total

File Type: RDS file (Single R Data Object)

Description: A calculated sum of all of the Narcan products (Boxes and Kits) that were distributed globally.

All Narcan Map Geo

File Type: RDS file (Single R Data Object)

Description: A cleaned and tidy data set that combines the SDL, Outreach, Rath, Social Services, Narcan Box/Kit, and Text-for-Narcan Data sets and summarizes the total Narcan products distributed by zip codes. This set is geo-processed with zip code shapes.

All Narcan Map Geo - No Rath

File Type: RDS file (Single R Data Object)

Description: A copy of the All Narcan Map Geo data set with all entries from the Rath and Social Services buildings removed. **This was done to produce an accurate zip code heatmap for all Narcan products distributed.**

All EC Map Geo

File Type: RDS file (Single R Data Object)

Description: A cleaned and tidy data set that combines the SDL, Outreach, Rath, Social Services, Narcan Box/Kit, and Text-for-Narcan Data sets and summarizes the total Narcan products distributed by zip codes in Erie County only. This set is geo-processed with zip code shapes.

All EC Map Geo - No Rath

File Type: RDS file (Single R Data Object)

Description: A copy of the All EC Map Geo data set with all entries from the Rath and Social Services buildings removed. **This was done to produce an accurate zip code heatmap for all Narcan products distributed.**

All Buff Map Geo

File Type: RDS file (Single R Data Object)

Description: A cleaned and tidy data set that combines the SDL, Outreach, Rath, Social Services, Narcan Box/Kit, and Text-for-Narcan Data sets and summarizes the total Narcan products distributed by zip codes in the city of Buffalo only. This set is geo-processed with zip code shapes.

All Buff Map Geo - No Rath

File Type: RDS file (Single R Data Object)

Description: A copy of the All Buff Map Geo data set with all entries from the Rath and Social Services buildings removed. **This was done to produce an accurate zip code heatmap for all Narcan products distributed.**

Final Data Structures (Outputs - cont.)

NaloxTracDock.R (Docking Program) →

Today

File Type: RDS file (Single R Data Object)

Description: A calculated date that's obtained by pulling the system date and time when all analyses for the Naloxtrac has been completed and the Naloxtrac app is ready to be built and deployed to the server. **This has been programmed to ensure the accuracy of timestamp that is published on to the app after rendering and deployment.**

<Date>

File Type: HTML File

Description: A rendered version of the Naloxtrac app that has been built and saved locally in an HTML File. This will allow backend users to view the file offline in between deployment dates. The NaloxTracDock program automatically saves this HTML file in the "NaloxTrac Versions" folder in the project directory in the backend in R.

NaloxTrac V1

File Type: R Markdown File with Shiny Enabled.

Description: A separate R Markdown (program) file that takes every output created from all secondary programs and builds the front-facing Naloxtrac web application. This program is used with RStudio Package "rsconnect" to deploy the Naloxtrac application to the internet/Shiny server.

* More About the Created Programs

More detailed information about each specific secondary program and the main NaloxTracDock docking program can be found in the separate documentation that has been created for each respective program. As stated earlier, the NaloxTracDock docking program acts as a container for all secondary programs that are responsible for data processing and analysis. **As such, these programs should only be altered by individuals that are proficient in the R programming language.** **Incorrect alterations to these programs can result in unintended and undesirable results.** The Naloxtrac web application can be updated and deployed directly from the docking program.

The docking program follows a step-wise process to check each data source (input) before processing. If the docking program detects issues with the data structures of the inputs, it will terminate the workflow and alert the user to the issue that needs to be fixed before attempting to run the program again. Most of these issues are produced by unauthorized changes to an original data source (i.e. changes in worksheet formatting, misspellings, changes in column names, etc.) It is imperative that all data inputted into the data sources remains the same. **Necessary changes to any data sources (columns, formatting, etc.) should be communicated with the backend programmer as the secondary and docking programming scripts will need to be altered to accommodate any changes.** **Failure to do so will result in the Naloxtrac program not being able to deploy or update properly.**