Public Naloxone Administration Dashboard

Introduction

The goal of the public Naloxone administration dashboard is to give the general public an overview of trends in Naloxone administration over time (using our v2 and v3 data sets) as well as associating recent instances of Naloxone administration with external data sources (e.g., US Census data). To that end, this dashboard is divided into three basic sections:

- **Naloxone use over time:** A trend line displaying the rate of Naloxone administrations among all NEMSIS activations over time,
- **Clinical and demographic measures:** A collection of detailed visualizations characterizing the EMS activations where Naloxone was used, and
- **Socio-economic factors (future visualizations):** Visualizations to describe the relationship between EMS activations where Naloxone was used, and economic data collect from the US Census

Global Inclusion Criteria and Filters

The global inclusion criteria defines the minimum characteristics each event record must meet in order to be included in any of the calculations for the Public Naloxone Administration Dashboard. For details on each element, its code, and range of values see the NEMSIS Version 3.4.0 Data Dictionary, and the NEMSIS Version 2.2.1 Data Dictionary.

For this dashboard, our inclusion criteria were as follows:

- **For Version 2 Records:** Medication Given contains "Naloxone" (E18_03)
- **For Version 3 Records:** Medication Given contains "Naloxone" or "Narcan" (eMedications.03), Unit Notified by Dispatch Date (eTimes.03) 2016 or later.

Please note, unlike other dashboards we provide, we make no requirements upon **Type of Service Requested** (e.g., "911 Response" only) or **Inciden t/Patient Disposition** (indicating that a patient contact was made).

Rate of Naloxone Administrations using NEMSIS Activations

This visualization plots the rate of Naloxone administrations to all NEMSIS activations over the years 2014-2016, and includes a regression based projection through 2017 with a 90% confidence bound. As the NEMSIS TAC is no longer collecting data under the V2 standard, this plot will not change with time, but should be used to help understand how the trends in administrations of Naloxone by EMS providers have been unfolding over the years.

The calculated rate is simply all NEMSIS activations where any of the medications administered were "Naloxone" over all NEMSIS activations for the given time period.

Rate of Naloxone Administration using NEMSIS Activations 2014 to 2016, with projection through 2017
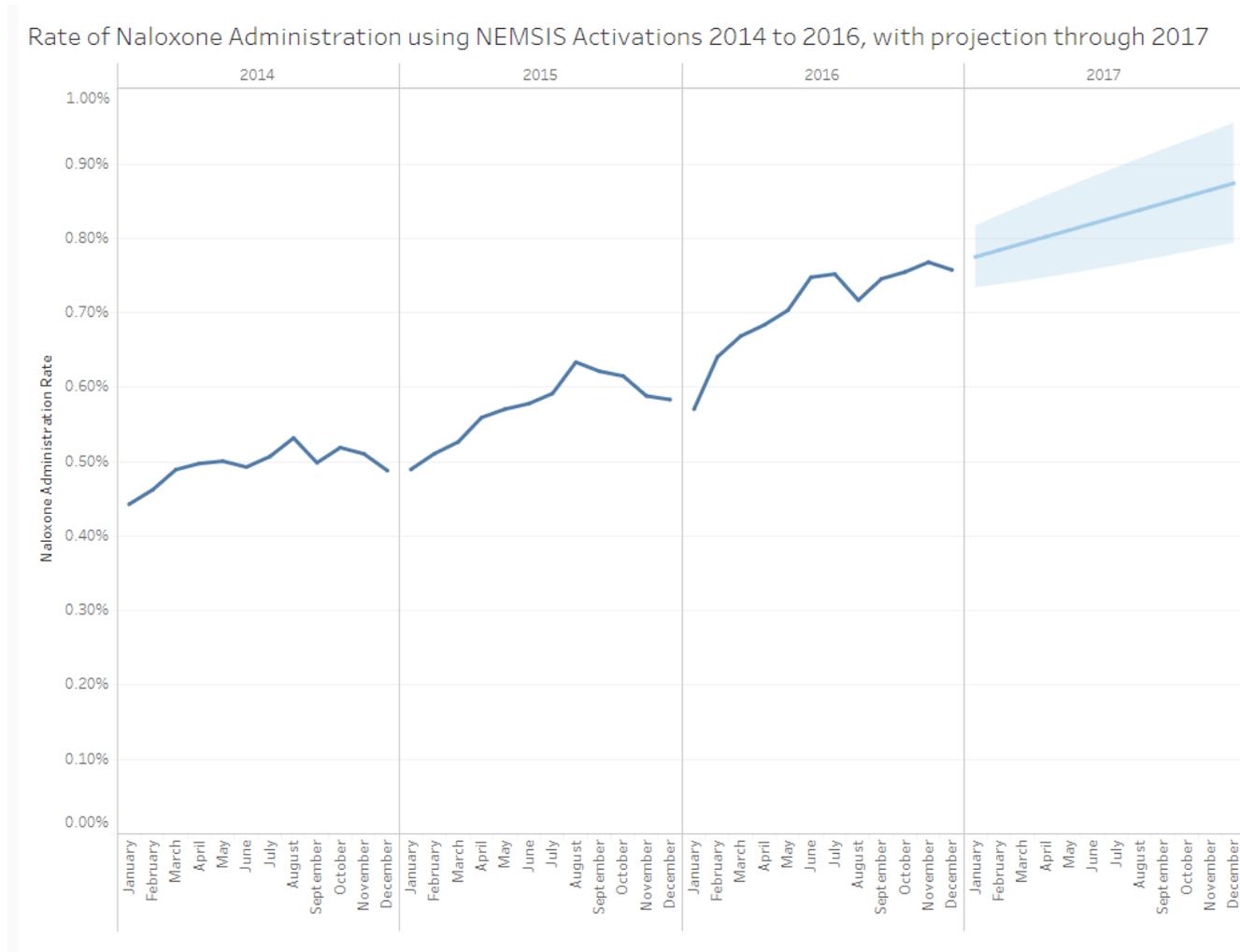
Event Demographics and Details Tab

This tab contains data collected under the Version 3 NEMSIS Standard, with records from 2016 to the present day.

Data Set Size

The data set size section is designed to be a road map to help navigate this subset of EMS activations. As the user makes selections and filters on the data, the data set size bars will adjust to show how much of the data set is represented in a selection.
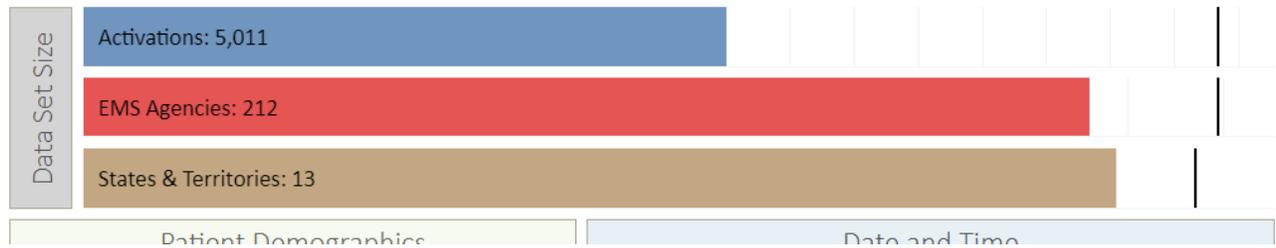
The colored bars and label show the activations, EMS agencies, and states and territories represented in the selection. The black lines on the right side indicate the size of the full data set which, as of this writing, contains 8,839 activations, 239 EMS agencies, and 14 states and territories. These score cards appear on both tabs containing V3 data, and will reflect any selections made on either tab.

Patient Demographics

Sex

This visualization displays the percentage of patients with any Naloxone administration recorded by sex with "Unknown" and "Null" values excluded. The size of the male and female figures are relative to the percentage of patients reporting each sex. Patient sex is determined by the element "Gender" (ePatient.13). In the tooltip, there is also a count of activations falling into each group. Like most visualizations on this tab, this can be used as a filter for the rest of the dashboard. Simply click on one of the figures and the dashboard will refresh to show just that subset of the data. To leave the filter, click the figure again.
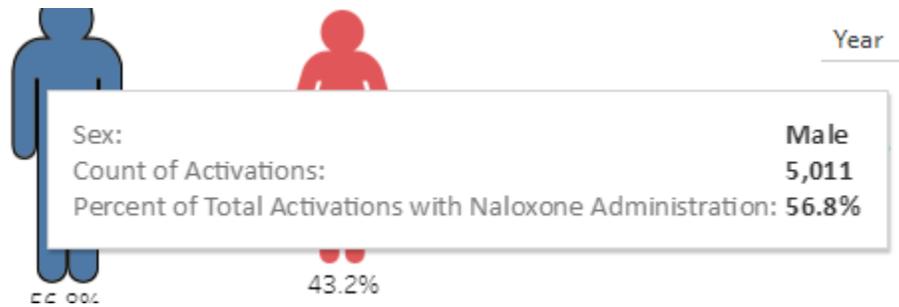
Age

The age visualization is a simple histogram (bar chart) with age in groups of 5 years. Darker colored bars indicate more patients in that age group. The percentage is out of all activations where Naloxone was administered. Patient age is determined by a combination of the elements "Age" (ePatient.14) and "Age Units" (ePatient.15). In the tooltip, you can also find the count of all activations in each age group where Naloxone was administered. Note that this chart does not work as a filter for the "Month and Year" and "Day of the Week and Time of the Day" boxes.
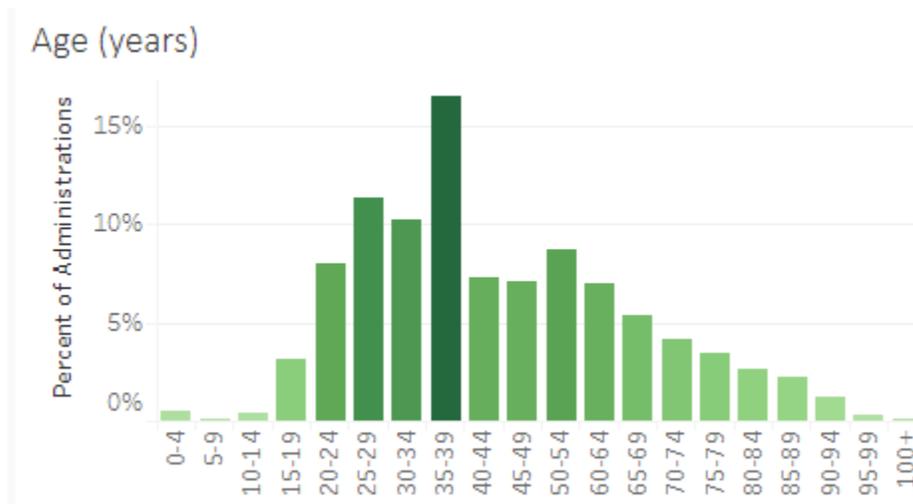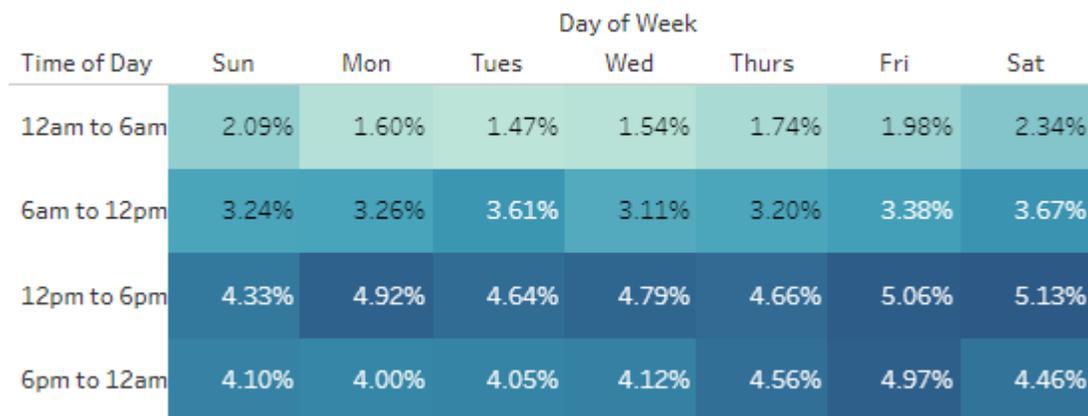

Date and Time

Month and Year

The month and year visualization provides a time-based overview of the Naloxone administration rate using the version 3 data set. This is analogous to the visualization found on the first tab. Each cell represents a month with the color indicating how high the Naloxone administration rate was relative to other months. Dates are determined from "Unit Notified by Dispatch Date Time" (eTimes.03). The tooltip also includes information on how many activations had a Naloxone administration in any given month. Like most visualizations on this tab, this can be used as a filter for the rest of the dashboard. Simply click on one or more cells, month names or years, and the dashboard will refresh to show just that subset of the data. To leave the filter, click the cell or title again.

						Month						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2016	0.03%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.06%	0.06%	0.06%	0.06%	0.06%
2017	0.07%	0.01%										

Day of Week and Time of Day

This visualization provides a heat map of when Naloxone administrations are happening by day of week and time of day. This visualization is shaded such that the times of the week that experience the most Naloxone administrations are darker, the percentages are similarly showing the percentage of Naloxone administrations happening at that time of the week. Dates and times are determined from "Unit Notified by Dispatch Date Time" (eTimes.03). The tooltip for the heat map also includes a count of activations with a Naloxone administration occuring at each time of the week. Like most visualizations on this tab, this can be used as a filter for the rest of the dashboard. Simply click on one or more cells, time blocks or days and the dashboard will refresh to show just that subset of the data. To leave the filter, click the cell or title again.
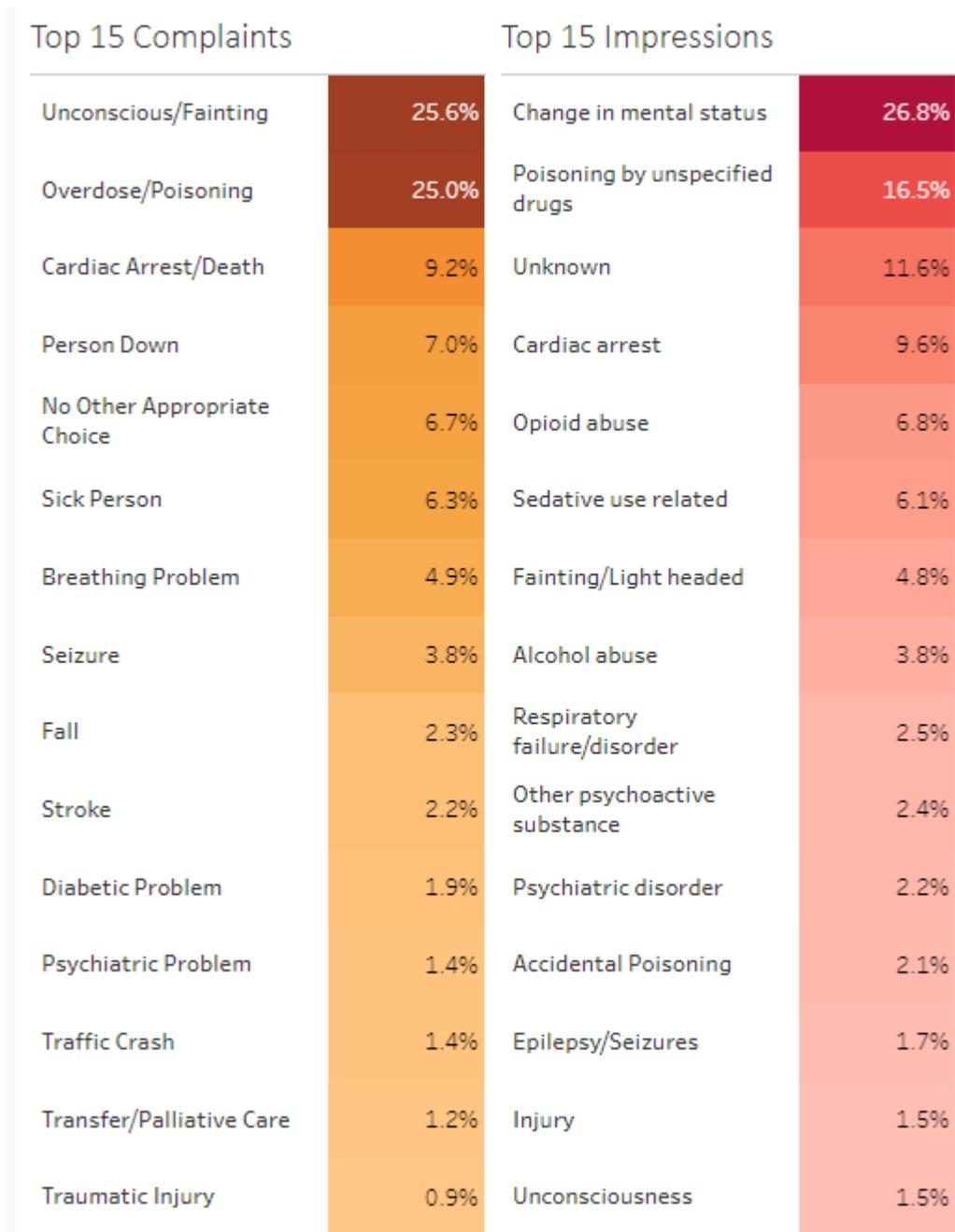
Day of Week and Time of Day

				Day of Week			
Time of Day	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
12am to 6am	2.09%	1.60%	1.47%	1.54%	1.74%	1.98%	2.34%
6am to 12pm	3.24%	3.26%	3.61%	3.11%	3.20%	3.38%	3.67%
12pm to 6pm	4.33%	4.92%	4.64%	4.79%	4.66%	5.06%	5.13%
6pm to 12am	4.10%	4.00%	4.05%	4.12%	4.56%	4.97%	4.46%

Clinical Measures

Top 15 Patient Complaints and Top 15 Provider Impressions

These two bar charts provide information on the 15 most commonly occurring values for "Complaint Reported by Dispatch" (eDispatch.01) and "Provider's Primary Impression" (eSituation.11) for activations with a Naloxone administration. For both charts the percentages is calculated as the percentage of activations with a Naloxone administration with the given value for a complaint reported by dispatch (or provider's primary impression). The tooltips for these visualizations also includes a count of activations for the given complaint or impression value. Like most visualizations on this tab, this can be used as a filter for the rest of the dashboard. Simply click on one or more labels or bars and the dashboard will refresh to show just that subset of the data. To leave the filter, click the label or bar again.

Top 15 Complaints

Complaint	%
Unconscious/Fainting	25.6%
Overdose/Poisoning	25.0%
Cardiac Arrest/Death	9.2%
Person Down	7.0%
No Other Appropriate Choice	6.7%
Sick Person	6.3%
Breathing Problem	4.9%
Seizure	3.8%
Fall	2.3%
Stroke	2.2%
Diabetic Problem	1.9%
Psychiatric Problem	1.4%
Traffic Crash	1.4%
Transfer/Palliative Care	1.2%
Traumatic Injury	0.9%

Top 15 Impressions

Impression	%
Change in mental status	26.8%
Poisoning by unspecified drugs	16.5%
Unknown	11.6%
Cardiac arrest	9.6%
Opioid abuse	6.8%
Sedative use related	6.1%
Fainting/Light headed	4.8%
Alcohol abuse	3.8%
Respiratory failure/disorder	2.5%
Other psychoactive substance	2.4%
Psychiatric disorder	2.2%
Accidental Poisoning	2.1%
Epilepsy/Seizures	1.7%
Injury	1.5%
Unconsciousness	1.5%

Number of Naloxone Administrations and Average per Record

This visualization displays, per activation, how many times Naloxone was administered. The size of the needle represents the number of activations, with the number indicating how many times Naloxone was administered. The tooltip brings up a count of activations as well as a percentage of activations with the given number of administrations. The number on the right size of this visualization indicates the average number of administrations per activation. Outliers, defined as records with 5 or more recorded administrations are excluded. Like most visualizations on this tab, this can be used as a filter for the rest of the dashboard. Simply click on one or more of the needle icons and the dashboard will refresh to show just that subset of the data. To leave the filter, click the icon again.
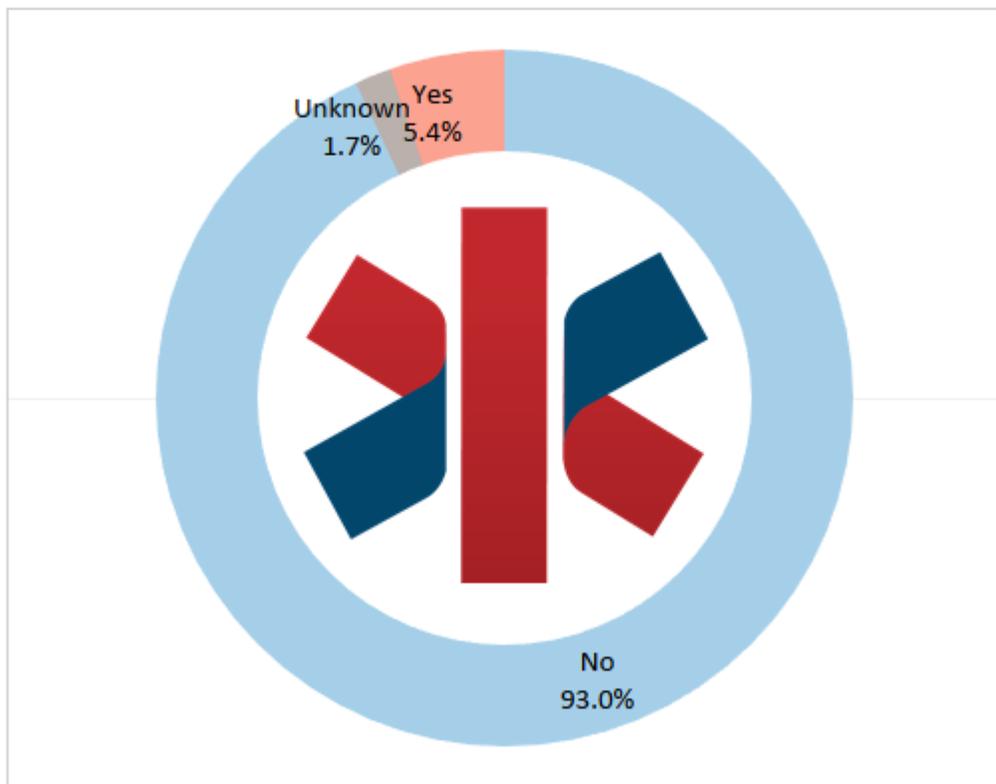
Number of Naloxone Administrations and Average per Record

1.28
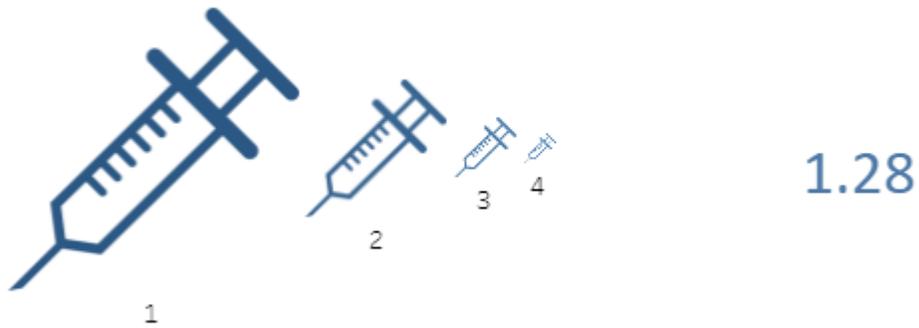
Was Naloxone Administered Prior to EMS Arrival?

This donut chart displays the data collected in the element "Medication Administered Prior to this Unit's EMS Care" (eMedications.02). The goal of this visualization is to help characterize Naloxone administered by bystanders or other non-EMS professionals. The denominator in the percentage is all records with a Naloxone administration. The tooltip for this visualization also includes a count of all activations falling into each category. Like most visualizations on this tab, this can be used as a filter for the rest of the dashboard. Simply click on one or more of the needle icons and the dashboard will refresh to show just that subset of the data. To leave the filter, click the icon again.

Influence of Social and Economic Factors Tab

This tab contains data collected under the Version 3 NEMSIS Standard, with records from 2016 to the present day.

Bar Graph of Naloxone Rate vs. Social/Economic Factor Rates

This visualization is a bar graph that reflects the Naloxone rate against a corresponding rate from the US Census for some social or economic factor. The goal of this visualization is to help to user identify any trends in Naloxone use with respect to these factors. To change the factor to be compared with the Naloxone rate, select the desired metric from the "Metric Selector" drop down menu. The bar chart will update automatically. Exact numbers for each mark are available in the tooltip. The metrics derived from US Census data are described below.

Social and Economic Census Metrics (most are self-explanatory):

Percent of adults that report fair or poor health (age-adjusted)

Percent of births with low birth weight (<2500g)

Percent of adults that reported currently smoking

Percent of adults that report BMI >= 30

Percent of adults that report excessive drinking

MV Mortality Rate, *crude motor-vehicle related mortality rate per 100,000 population*

Percent of population < 65 without insurance

Population to Primary Care Physicians ratio, *(Number of PCP/Population)*100,000*

Percent of adults that report not getting social/emotional support

Percent of children that live in single-parent households

Violent Crime Rate, *Violent crimes/population * 100,000*

Age-adjusted years of potential life lost (YPLL) rate per 100,000, *a rate for 'premature death' based on deaths for person under 75*

GINI (a measure of income inequality)

Tableau Toolbar

All Tableau dashboards share the same toolbar at the bottom of the view. Note that while most dashboards will have the same selections, some items may differ based on user permissions.
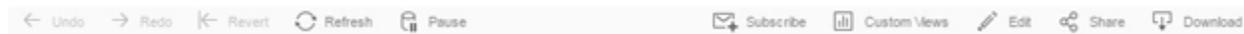
Undo, Redo, Revert, Refresh and Pause

These selections are found on the left side of the Tableau toolbar and can be used to help navigate the dashboard.

Undo will remove the last selection made, if you have used undo to remove a selection, you can then use redo to return to that selection. Revert returns the dashboard to its original view. Refresh will reload the data on the dashboard subject to any selections made. Pause will stop the dashboard from refreshing as you make selections.

As an example, if you want to make a set of complete selections in a dashboard's filters, you could use these buttons to speed up the process. Normally, every time a change is made, the dashboard will refresh. If you select "Pause" however, the dashboard will remain the same no matter how many selections you make. Once you have made all your selections, you can select "Refresh" to reload the dashboard based on those selections.

Subscribe, Custom Views, Edit, Share, and Download

These selections are found on the right side of the Tableau toolbar and can be used to interact with the dashboard in external ways.

The Subscribe button allows users to subscribe to a daily or weekly email that will show a static image of the dashboard as well as a link to the view. You can select either a particular view (tab) or all the views (tabs) available in the dashboard. Under "Email Subscriptions," you can choose the frequency of emails. In "Subject Line," you can assign the subject for the emails. As a default, the subscription will be assigned to the email address associated with your NEMSIS account.

Custom Views allows users to save any particular set of filters or selections for quick access later. A user can create their view and then name it and save it either for their own personal use or use by anyone with access to this dashboard. Previously saved views will appear in the custom views tab.

Edit will open the dashboard in the web editor for Tableau. Note that this option is not available on all dashboards and will require some knowledge of how to use Tableau to build and edit dashboards.

Share will provide a couple of options for sharing the dashboard with others, specifically an embed code and a regular HTML link. While you can use the link to share the dashboard with others, please keep in mind that many of the NEMSIS dashboards will require a username and password. Only those with credentials will be able to access them.

The last option is Download. Clicking on the download button opens up several options to download either the workbook, the data within it, or a static image of the view.

Selecting any one of these file types will produce a download of the requested file. Remember that not all options will be available for all dashboards and views.

Contact Info

Any questions, comments, concerns, or suggestions regarding this or other reports made available by the NEMSIS TAC, please contact us or leave a comment below!

Contact information is also available on the NEMSIS website.

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