Public Health Dashboard User Guide

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Public Health Dashboard

Background

The Public Health Dashboard is designed for individuals working on population health and public health, who want a deeper understanding of the community's health. With this dashboard, users have the ability to analyze Maryland hospital utilization and filter on metrics of interest such as demographics, conditions, geography, payer type, utilization type, and much more. Throughout the dashboard, users can define a population of interest that will persist through the report to better understand that population's characteristics. Users can compare this population to statewide metrics or another user defined population. The dashboard hosts two interactive maps of Maryland to drill down into utilization by county or zip code and view areas of excess. Please note that any comparisons in this report are not case mix adjusted but are direct comparisons. Trending and hospital claim service line analysis are also accessible.

Data Sources

Utilization Data

The primary data source shown in this report is the HSCRC Case Mix data. The Case Mix data includes all visits at Maryland hospitals across all payers. This report has been filtered to only show Maryland residents who visited Maryland hospitals. This report does not include Maryland residents who visited out of state hospitals.

Please note: This is a summary level report, all visit or patient counts of 10 or less will be suppressed.

County/Zip Codes:

For all utilization and cost measures, the county and zip code values come from the Case Mix data. The county/zip code shown reflects the county and zip code where the patient resided at the time of their visit.

For all population counts and rate denominators, the county and zip code values come from the American Community Survey 5-year estimates.

When applying filters, population denominators do not change based on age, race, and gender. The rate will remain out of the total population.

Prevention Quality Indicators (PQI):

The Prevention Quality Indicators (PQIs) are a set of measures that can be used with hospital inpatient discharge data to identify "ambulatory care sensitive conditions" (ACSCs)

in adult populations. ACSCs are conditions for which good outpatient care can potentially prevent the need for hospitalization, or for which early intervention can prevent complications or more severe disease.

Even though these indicators are based on hospital inpatient data, they provide insight into the quality of the health care system outside the hospital setting. Patients with diabetes may be hospitalized for diabetic complications if their conditions are not adequately monitored or if they do not receive the patient education needed for appropriate self-management.

The PQIs assess the quality of the health care system, and especially the quality of ambulatory care, in preventing medical complications. As a result, these measures are likely to be of the greatest value when calculated at the population level and when used by public health groups, state data organizations, and other organizations concerned with the health of populations."[1]

For more information on how each PQI is calculated, please visit: https://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec_ICD10_v2019.aspx

Also, you can visit the AHRQ website for more information on PQIs at: https://www.qualityindicators.ahrq.gov/Modules/pqi_resources.aspx

Readmissions:

The Public Health Dashboard uses the HSCRC's Readmission Reduction Incentive Program (RRIP) definition of a readmission. The RRIP defines a readmission as all-payer, 30-day, all-cause inpatient readmissions at acute care hospitals, using the CRISP unique patient identifier to track patients across hospitals. The readmission measure excludes certain types of discharges from consideration, e.g., newborns and planned admissions. For more information on the RRIP Policy and readmissions, please visit the following HSCRC website page: https://hscrc.maryland.gov/Pages/init-readm-rip.aspx

Service Lines:

Service line is based on the 3M APR DRG grouper for inpatient admissions and observation stays over 24 hours and the EAPG grouper for observation and ED visits. For best interpretation, we recommend that you separately filter on ED and observations under 24 hours from inpatient visits and observations over 24 hours. The service line can be interpreted as the primary service that a patient received in the hospital.

[1] https://www.ahrq.gov/downloads/pub/ahrqqi/pqiguide.pdf

Conditions:

All conditions in this report are defined at the time of the patient visit and include all visits where the conditionspecific diagnosis codes were present. For example, if you filter on asthma, the report will show the number of visits where an asthma diagnosis code was present.

Conditions not mentioned in the table below are defined through the CMS Chronic Condition Warehouse (CCW). CCW condition variables are developed from specific diagnosis codes, MS-DRG codes, or procedure codes. For more information, visit the CCW website at: https://www2.ccwdata.org/web/guest/home

Behavioral health conditions in the Public Health Dashboard were defined by the Clinical Classification Software (CCS-R) or Clinical Classification Software (Refined). CCS-R was developed by AHRQ as a tool for clustering patient diagnoses and procedures into a manageable number of clinically meaningful categories. For more information on CCS-R and CCS-R categories, please visit: CCS-R ICD10: https://hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp

Condition	Definition	ICD Codes
Alcohol Overdose	Alcohol in combination with any other substance	ICD-9: E860, E8600, E8601, E8602, E8603, E8604, E8608, E8609 ICD-10: T510, T510X1%, T510X4%, T511, T511X1%, T511X4%, T512, T512X1%, T512X4%, T513, T513X1%, T513X4%, T518, T518X1%, T518X4%, T519, T5191%, T5194%, T520, T520X1%, T520X4%, T521X, T521X1%, T521X4%
Any Mental Health Condition	Mental health condition defined by Clinical Classification Software Refined in Categories from MBD001- MBD034	Please refer to the CCSR link above for a list of the ICD-10 codes for this condition.
Any Overdose	Any diagnostic code related to an overdose	All ICD codes in Opioid Overdose and Alcohol Overdose conditions.
Any Substance Use Disorder	Substance use disorders defined by Drug Use Disorder or Alcohol Use Disorder	Please refer to the CCSR link above to get the list of the diagnosis and procedure codes.
Falls	Falls defined in ICD-10 codes	ICD-10: W00-W19, X80, Y01, Y30
Malnutrition	ICD code with any malnutrition diagnosis on visit	ICD-9: 262, 263.0, 263.1, 263.8, 263.9 ICD-10: E43, E44.0, E44.1, E46

Non – Alcohol Related SUD	Non-Alcohol related SUD defined by Clinical Classification Software in Category 661	Please refer to the CCS-R link above for a list of the ICD-9 and ICD-10 codes for this condition due to the large number of ICD codes.
Opioid Overdose	Opioid overdose as defined by the National Center of Health Statistics.	Please refer to https://www.cdc.gov/nchs/dhcs/drug-use/icd10-codes.htm to get the list of ICD10 codes. Codes for intentional overdoes and assault have been excluded (ICD10 codes with X2 and X3)
Suicide and intentional self-harm	Suicide and intentional self-harm defined by Clinical Classification Software in Category 662	Please refer to the CCS-R link above for a list of the ICD-9 and ICD-10 codes for this condition due to the large number of ICD codes.
Firearm Related injuries	ICD codes with any firearm injury code on visit	ICD-10: W321, W330, W331, W340, W341, X72, X73, X74, X93, X94, X95, Y22, Y23, Y24, Y350, Y384

Measures

This report used various metrics from different data sources. Below are definitions and sources for each measure.

Metric	Definition
Visits	Count of Inpatient, Observation, and/or ED visits that occurred. This measure is based on Case Mix data
Patients	Count of unique patients. This is based on Case Mix data
Visits per 1000	Visits per 1000 residents in selected geography (statewide, county, or zip). The numerator in this measure is based on Case Mix data. The denominator is based on the American Community Survey 5-year estimate.
Patients per 1000	Patients per 1000 residents selected geography (statewide, county, or zip). The numerator in this measure is based on Case Mix data. The denominator is based on the American Community Survey 5-year estimate.
Readmit Rate	Rate of readmission based on the HSCRC RRIP. The numerator is the number of RRIP readmissions based on the Case Mix data. The denominator is eligible discharges from inpatient hospital stays.
PQI Rate	Rate of PQI occurrence. The numerator is the number of visits considered a PQI based on Case Mix data. The denominator is eligible bedded care visits.

LOS	Total length of stay for all visits. Length of stay is set to one day for same day discharges. This measure is based on the Case Mix data.
LOS per Visit	Average length of stay per visit. This measure is based on the Case Mix data.
Charges	Total charges for visits. This measure is based on the Case Mix data
Charges per Capita	Charges per residents in zip code, county or statewide. The numerator is based on the Case Mix data. The denominator is based on the American Community Survey 5-year estimates for the selected geography (statewide, county, or zip).
Charges per Patient	Average charges per patient. This measure is based on Case Mix data.
Charges per Visit	Average charges per visit. This measure is based on Case Mix data.

User Guide

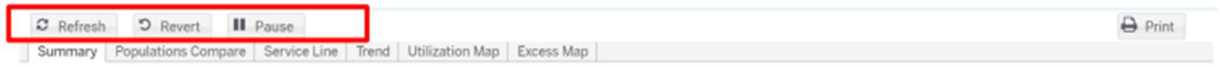
Tableau Public Health Dashboard Access/Card

Step 1. To access the Public Health Dashboard, login to the CRISP Reporting Services Portal by visiting https://reports.crisphealth.org. Once in the CRS Portal, a dashboard of different blue report "cards" will appear, availability of reports is based on the access of the user. Clicking the card named "Public Health Dashboard" will bring up the available reports for this category. The following screen shots represent the user's workflow.

Step 2. By clicking the Tableau icon as shown below, you will access to the Public Health Tableau Dashboard. The question mark icon will allow you to access documentation such as user guides and data dictionaries where applicable.

Tableau Features

On each Tableau dashboard, there are menu options for the user to select, which are listed below. Additionally, the Tableau report contains multiple dashboards. The available dashboards are listed at the top.



Menu Option	Description
Refresh	The refresh button is used to refresh the data source used by the Tableau report.
Revert	The revert button restores the report to its default view, undoing all user selections and/or filtering.
Pause/Resume	This button pauses or resumes the Tableau layout update. This is useful when the user is making multiple filter changes at once. By pausing the layout update, the report is not reloaded for each filter change. When the user clicks to resume the layout update, the report will be reloaded with the filter selections applied.
Help	This button opens the Tableau user guide.
Print	This button allows you generate a PDF from the selected tabs in Tableau. When you click the icon, a menu with various export options appear. The user can print multiple tabs and with the desired filters, and the user has options to adjust the page scaling, paper size, and paper orientation for printing.
Excel/Crosstab	The Excel or crosstab option allows user to export a dataset into an Excel workbook or CSV file, and provides additional columns that may not be present in the Tableau workbook. You will have to separately download a new file if you want the data tables with different filter selections.

Tableau Filters

Users can select filters in the report to focus the analysis on specific areas and populations. Filters selected on one tab will carry through the subsequent tabs in the report. If selecting

multiple filters, it is recommended to first press the "Pause" button, apply all the desired filters, and then click the "Resume" button to update the data in the view. All of the filters in the Public Health Dashboard are applied on a visit level. Below is a description of the filters that can be applied throughout the Tableau report.

Category	Filter	Description
Utilization	Visit Type	Inpatient (IP), Observation (OBS) visits greater than or equal to 24 hours, Observation visits less than 24 hours, and Emergency Department (ED) visits based on the Case Mix data as reported by hospitals.
	Month of Discharge Date	Month patient is discharged from the hospital.
	Conditions	Condition(s) patient presented at the hospital. For more information on condition data source, please reference the Measures section in this user guide.
	Hospital Name	Name of hospital patient visited based on the Case Mix data
	High Need	Patients with 3 or more IP discharges and/or OBS visits of 24+ hours during the last 12 months across all hospitals.
	Rising Need	Patients with 2 or more ED, IP, or OBS visits greater than 24 hours during the last 12 months across all hospitals. Excludes High Need Patients.
	Payer	The primary payer as reported by hospitals in the Case Mix data.
	Service Line	The primary service that was received in the hospital during that visit.
	Prevention Quality Index	Number of PQIs attributed to the hospital for the given PQI. For more information, please reference the Measures section in this user guide.
Demographics	Age Group	Age grouped together as reported by hospitals in the Case Mix data.
	Race, Ethnicity, Gender	Race, Ethnicity, and Gender as reported by hospitals in the Case Mix data.
Geography	Zip, County	Zip or County the patients resides in as reported by hospitals in the Case Mix data. **Please note:** the Case Mix data includes all visits at Maryland hospitals. This report had been filtered to only show Maryland residents who visited Maryland hospitals. This report does not include Maryland residents who visited out of state hospitals.

Report Sections

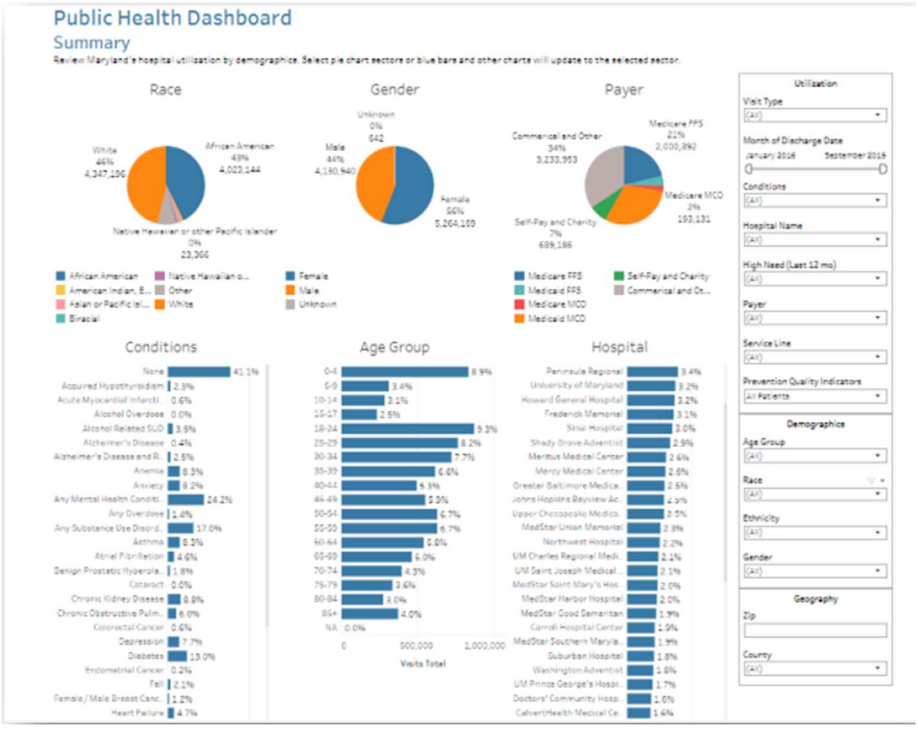
1. Summary
2. Populations Compare
3. Service Line
4. Trend
5. Utilization Map
6. Excess Map

Summary

The Summary tab provides users the ability to view Maryland's hospital utilization by patient demographics. This allows users to identify potential populations of interest and help them decide which filters to apply throughout the report.

Users can interact with any of the charts by selecting a pie segment or bar chart they are interested in. Once selected, the other charts will update to only show information on the selected segment or bar. Multiple segments can be selected to further drill down into the report.

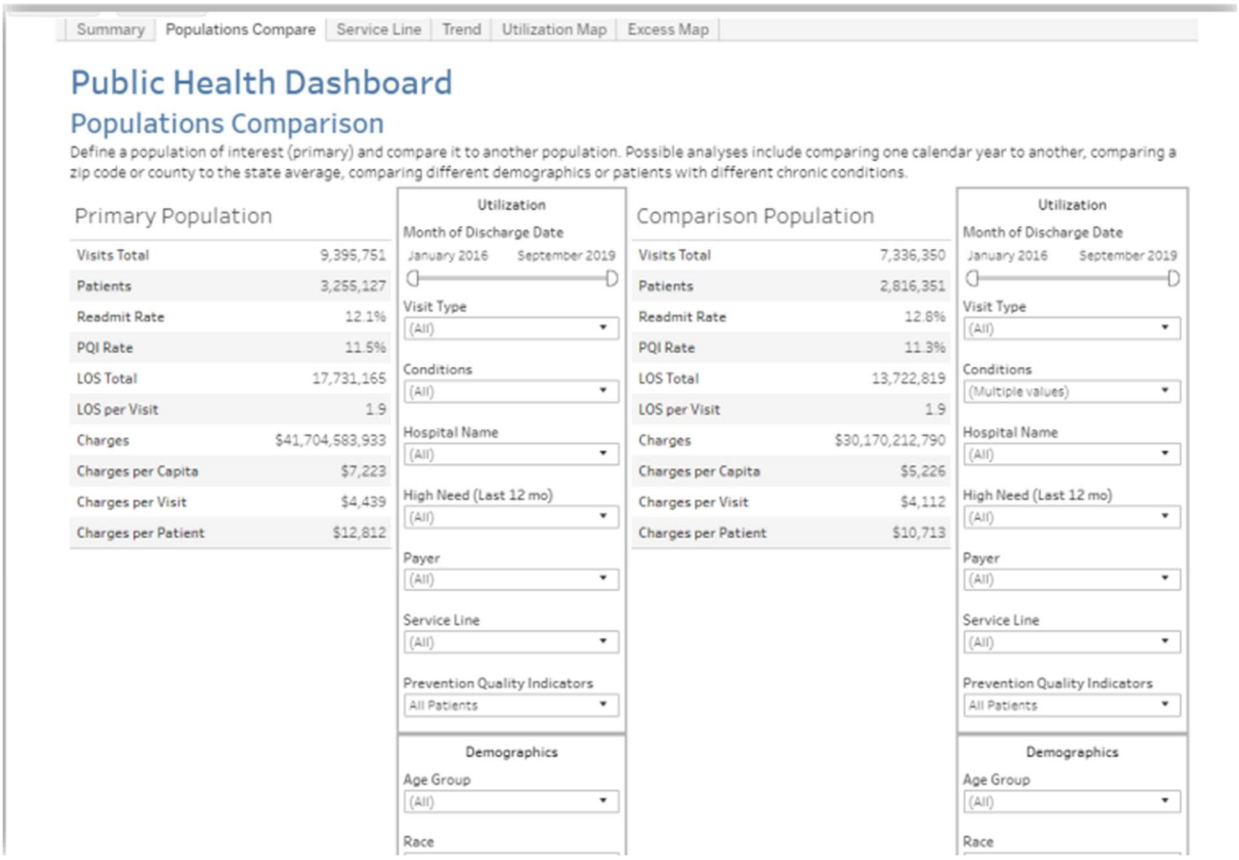
Users can also filter on a geography, condition, hospital, and timeframe of interest. The top row shows the percentage of visits as broken down by race, gender, and payer. The bottom left graph shows the percentage of visits where different conditions were present. The bottom center graph shows the percentage of visits that occurred by age grouping. The bottom right graph shows the percentage of visits that occurred at each hospital in Maryland. Please note, if you filter on one of the categories shown in this report (i.e. condition, gender, age group) the percentage will show as 100%.



The population selected in this tab (using filters on the right) will become the Primary Population in the Population Compare tab.

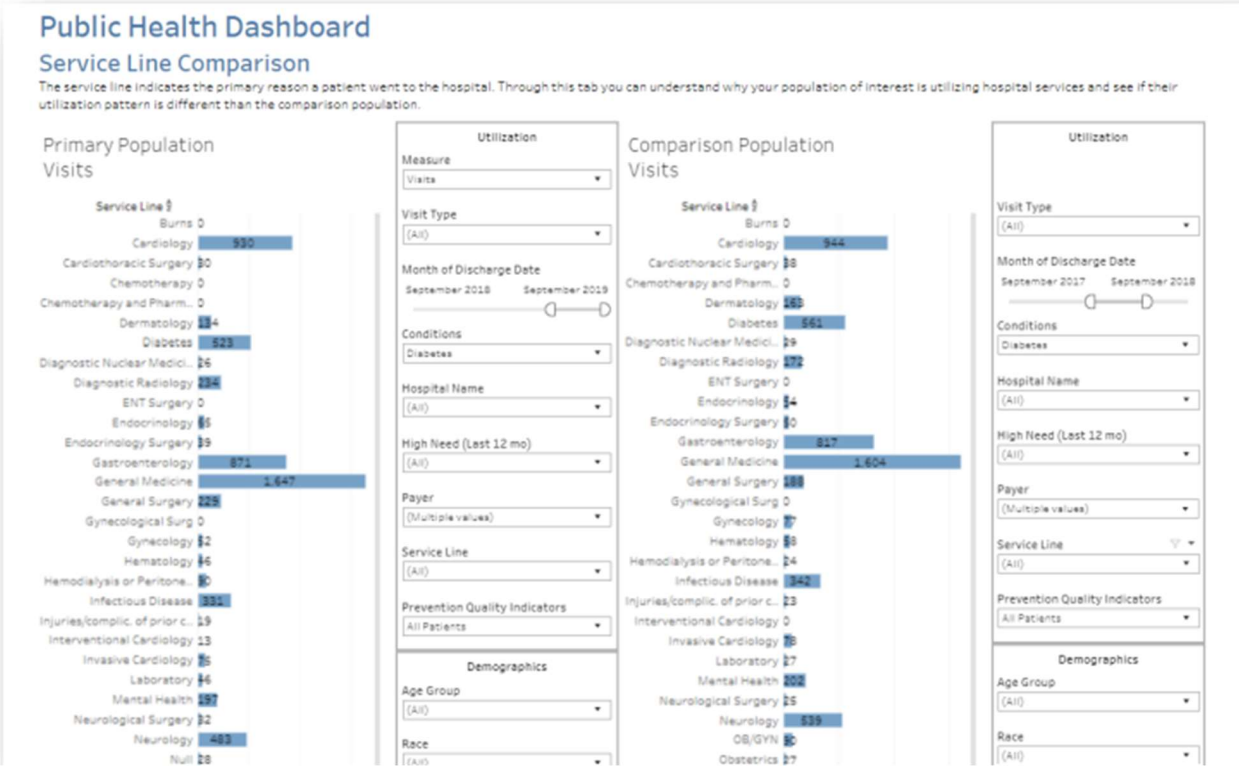
Populations Compare

The Populations Compare tab allows users to select two different populations and view a summary of hospital utilization between the populations. The population selected on the Summary tab will automatically appear here. A user can select filters to view residents with Medicaid in Baltimore County with diabetes and select a comparison population for residents with diabetes and Medicaid statewide. The user can understand hospital utilization pattern differences and similarities between the county and the state to better understand diabetes in their county. The filters selected for the Primary Population will be considered the main population and will be applied to all the tabs in the report. For an explanation of the metrics in this tab, please see the measures section.



Service Line

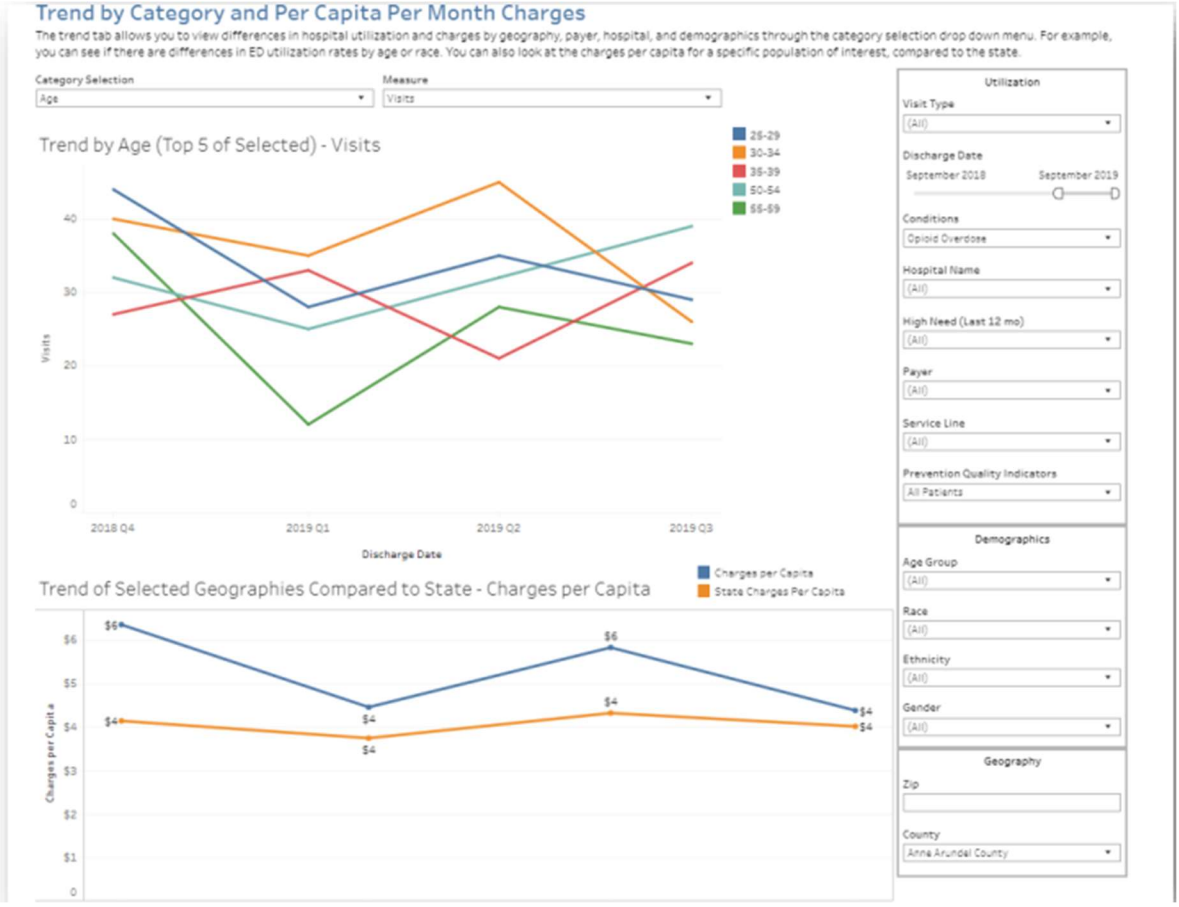
The Service Line comparison applies the same filters selected in in the Population Compare tab for the Primary and Comparison Populations. This tab allows users to compare services used in the two populations. At the top of the box with the Primary Populations filters, the user can select a measure to compare between the populations. This helps users understand the services utilization and charges by each of the populations and how they differ. For example, users could compare the number of visits for different services among the Medicaid diabetic population in Baltimore County comparing the current year to the previous year.



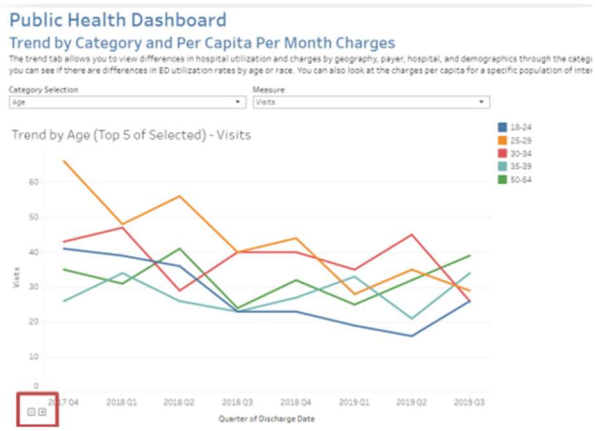
Trend

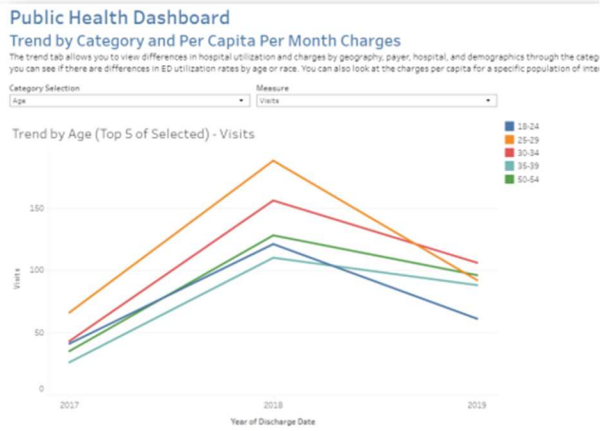
The Trend tab allows users to view differences in hospital utilizations and charges for their Primary Population with the 'Category Selection' filter. Also, the user can select different measures to view with the 'Measure' filter. The first graph displays the category and measure selected in the filters and shows the top 5 values in the filters chosen for each category. The categories included are county, zip code, hospital, payer, age, gender, and race. The measures are described in the measure section.

The second graph compares the selected geography (zip and county filters) to the state by charges per capita. For example, a user can select opioid overdoses in Anne Arundel County and select age in the 'Category Selection' filter to see the number of visits by age group. The first graph can be useful in understanding number of hospital visits for opioid overdoses in Anne Arundel County by age group to identify age groups to target. The second graph can help the user understand if the charges per capita in Anne Arundel County is higher than the statewide average.



If users hover over the bottom left corner of the graph a plus and minus sign appear which allows the user to drill down to a more granular time period. For example, clicking the minus sign will show years on the X axis and clicking the plus sign will show months



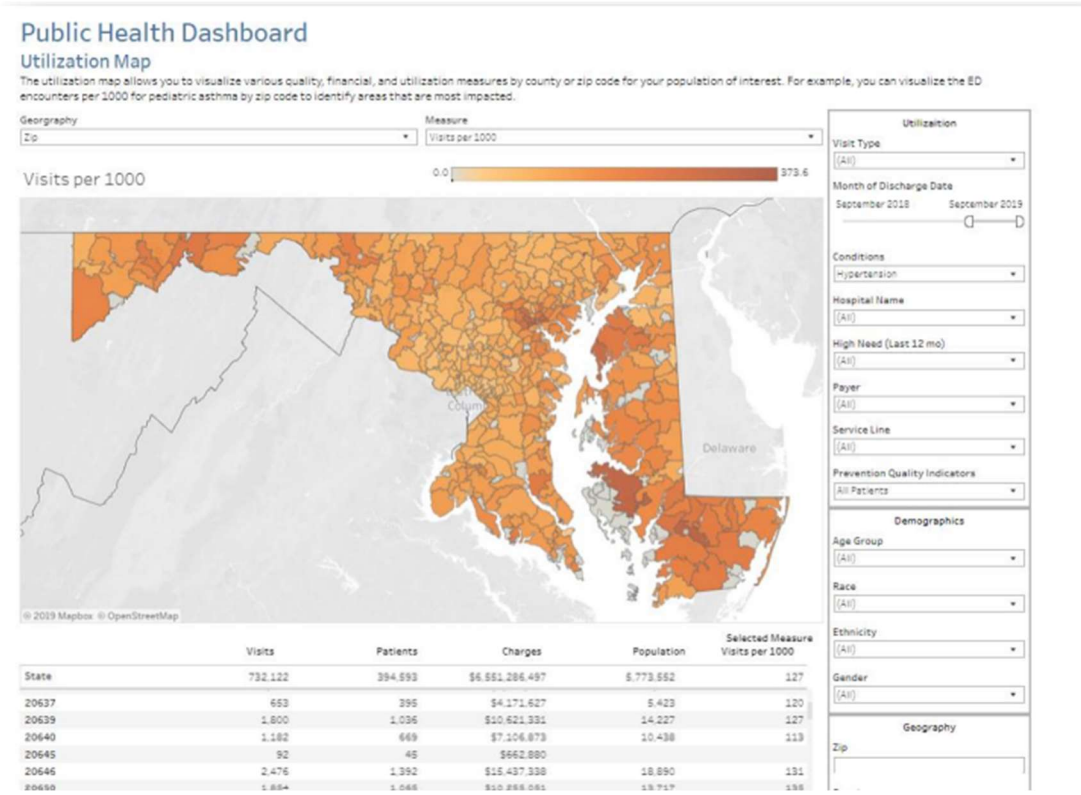


Utilization Map

The Utilization Map allows user to visualize trends by zip or county to identify areas most impacted by the measure and filters selected. The chart below the map populates with data from the measure selected by the zip or county. For example, users can use this to identify zip codes with high visits per 1000 for hypertension.

Below the map is a table of the results by zip or county. The table shows visits, patients, charges, the population, and the measure selected in the drop-down filter.

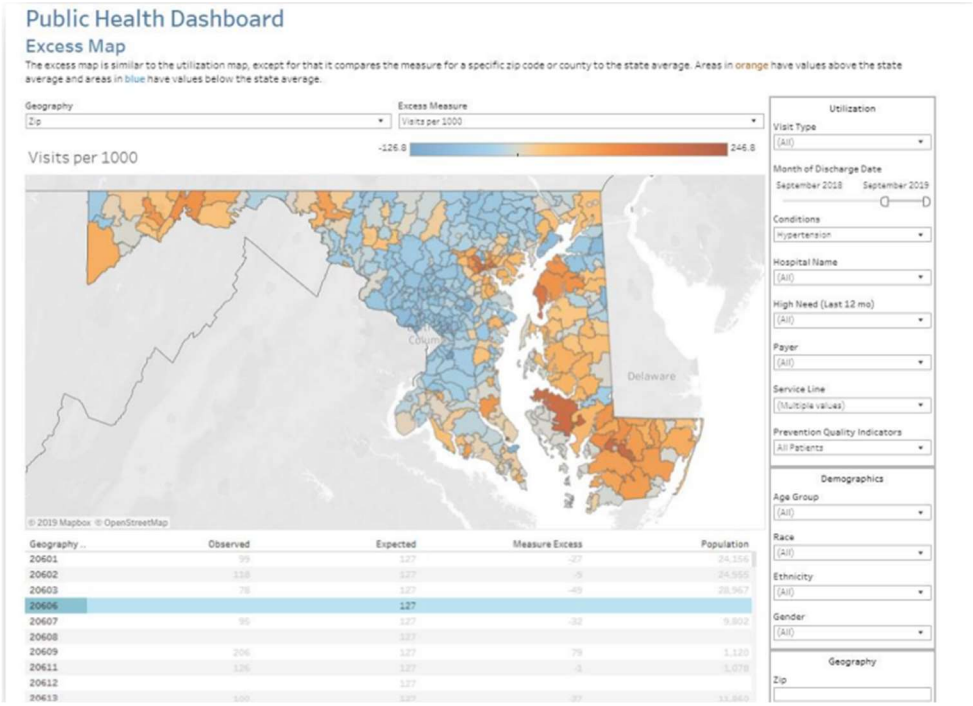
Please note that population denominators are not age, race, or gender adjusted. In addition, zip codes that have <11 visits will be shown as having 0 visits on the map.



Excess Map

The Excess Map is similar to the utilization map but compares measure for a specific zip or county to the statewide averages. This provides users a visual of areas that are higher than statewide averages. The observed column shows the metric for that zip code or county, the expected column shows the statewide average for that metric, and the excess is the difference between those two measures. For example, users could use this report to identify zip codes where the number of visits for hypertension is higher than the statewide average.

Please note that the comparison of geographic areas to statewide average are not case mix adjusted.



Excess Map Measures

Metric	Definition
Visits	Visits per zip or county - (Statewide visits/state population)*(zip or county population)
Visits per 1000	Hospital visits per 1000 residents minus the number of visits statewide per 1000 population
Readmit Rate	Readmission Rate per zip code or county population minus the statewide readmission rate
PQI Rate	Hospital Visits with PQI divided number of visits with bedded care in zip code or county minus statewide PQI Rate
LOS per Visit	Average length of stay for zip code or county minus the average length of stay statewide.