



Cross-Agency Coordination on Healthcare Strategies and Measures

First Year Report: Building the System

As Required by

**2020-21 General Appropriations
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Regular Session, 2019 (Article IX,
Health Related Provisions, Section
10.06)**

**Health and Human Services Commission
Department of State Health Services
Employees Retirement System of Texas
Texas Department of Criminal Justice
Teacher Retirement System
University of Texas Health Science Center
at Houston**



TEXAS
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Services

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Executive Summary

The 2020-21 General Appropriations Act (GAA), House Bill (H.B.) 1, 86th Legislature, Regular Session, 2019 (Article IX, Health Related Provisions, Section 10.06) requires state agencies that pay for the health care of Texans to coordinate data to identify outliers and improvements for efficiency and quality that can be implemented within each healthcare system. Section 10.06 identified five key agencies as providers of health care benefits:

- Department of State Health Services (DSHS) which promotes and protects the health of all Texas residents;
- Employees Retirement System of Texas (ERS) for active and retired State and certain higher education employees and their dependents;
- Health and Human Services Commission (HHSC) for persons enrolled in Medicaid and the Children's Health Insurance Program (CHIP);
- Texas Department of Criminal Justice (TDCJ) for incarcerated persons in the State prison system; and
- Teacher Retirement System (TRS) for active and retired school and public education employees and their dependents.

Section 10.06 requires the agencies to submit a report to the Legislative Budget Board (LBB) and the Office of the Governor no later than September 1, 2020. The report must describe: coordination activities; efficiencies identified; individual agency policies and practices that have been improved due to the application of the data; and recommendations on future ways to reduce cost and improve quality of care in each health care system.

Coordination Activities

Coordination activities began as early as July 2019 and included:

- Establishing the 5 Agencies Project Workgroup (Workgroup) comprised of representatives from the five agencies and from The University of Texas Health Science Center at Houston (UTHealth) Center for Health Care Data (Data Center) to facilitate compliance with the rider.
- Creating of a scope of work with tasks and deliverables organized in a phased timeline for accomplishing the project goals and objectives.

- Developing a charter to govern the relationship among the agencies and to define decision-making processes.
- Creating two subcommittees, a Strategic Governance Subcommittee to provide direction and oversight for Workgroup actions and a Data Subcommittee consisting of agency representatives knowledgeable on the required data elements, formats, and limitations to work directly with the UTHealth Data Center on data aggregation and analyses.

Efficiencies Identified

To begin coordination efforts, the workgroup developed a set of comparable metrics from 255 different data sources. While the datasets all contained information on health care services and expenditures, they did so in different ways. For example, cost in one dataset could be based on paying for each service rendered to a patient, while another source could measure set fees paid to a provider per person per month. The five agencies partnered with the UTHealth Data Center to decipher each data source and how the respective data is defined to ensure the accuracy of any cross-agency comparisons.

Despite the project's complex initial administrative and technical tasks, representatives from the five agencies and the UTHealth Data Center have been successful in collecting and aggregating widely disparate data in varying formats from multiple sources on an extremely large scale. Specifically, this project is storing 680.3 gigabytes of data coming from 255 data sources comprising over 405 million health records (e.g., claim, visit, encounter, prescription). This amounts to an estimated 9.4 million persons over approximately three fiscal years and represents over \$96 billion in total dollars expended.

The agencies created data warehouses ahead of schedule for each of the four agencies contributing data during the first year of the project.¹ These data warehouses were completed between one and four months after receiving data from each agency. A fifth comparative warehouse was then developed incorporating data from all four agencies.

From the data warehouses, secure interactive data portals for each agency provide authorized users access to data that has been formatted and organized to allow for viewing of agency-specific information. Most importantly, a fifth interactive data

¹DSHS can provide data as needed to supplement the new warehouses and support specific quality improvement and value-based initiatives; however, the agency was not a data contributor for the initial phase of the project.

portal provides meaningful comparisons across all agencies. These portals are currently in beta version and will be updated with enhanced analytics and increased functionality in fiscal year 2021.

For the first time, meaningful analytics can be efficiently performed across the state's health care agencies. The aggregation of data and standardization of analytical and reporting processes using a single, qualified data analytics service eliminates possible variations in statistical methodology and allows reported metrics to be derived in a consistent manner to ensure comparability across agencies. This cross-agency capability is a valuable complement to each agency's own substantial analytic efforts.

Improvements to Agency Policies and Practices

Data aggregation and standardization was the key deliverable in the initial year of the project. In addition, the workgroup was able to identify improvements to agency policies and practices that resulted from the application of the data.

The most notable successes are:

- The practice of regular contributions to an aggregated data warehouse in one location and one format for producing cross-agency comparisons and the establishment of associated data transfer and sharing practices and policies to facilitate future data exchanges;
- The establishment of data validation processes to ensure data completeness and validity and accurate reporting and cross-agency comparisons; and
- Access to data portals that allow agencies to visualize different data categories (e.g., demographics, utilization, expenditures), see trends across years, and make comparisons among populations (e.g., age groups, enrollment statuses, gender. For most agencies, this is the first time they have had access to this type of comparative data.

Other achievements impacted specific individual agency practices. For example, the processes of identifying and diagramming data sources and types, as well as aggregating data in one location, have improved data reporting for TDCJ and have led to a better understanding of their population's health care needs and service utilization. In addition, the UTHealth Data Center's logic and coding for claims data analyses has assisted TRS in establishing processes for their internal claims data analyses.

Recommendations

Recommendations to reduce cost and improve quality of care in each health care system are expected in fiscal year 2021. Now that the data have been aggregated into comparable models, the agencies individually and collectively have a basis to select areas for additional study with the goal of identifying interventions to reduce cost and improve quality of care in each health care system, per Section 10.06. The workgroup will also use this data to develop common strategies for responding to critical, emerging health care issues. With the data aggregation platform, a future analysis could, for example, provide a wider view of the impacts of the current COVID-19 pandemic on the state's health care systems and population than is currently available.

The strong collaboration and data analysis efforts fostered in year one will continue throughout the second year of the project, with a focus on providing data informed recommendations for programs, services, policy, or other strategies to implement and improve best practices, create service efficiencies, and improve resource allocations. These strategic discussions will result in recommendations and evaluations on potential value-based payment strategies, including opportunities for episode-based bundling and pay for quality initiatives to improve outcomes and control cost.

Next Steps

Work beyond the initial two-year project has the potential to drive meaningful improvements in health care outcomes, costs, and delivery models. Web-based data portals created for this project are powerful tools that can be used to visualize population health status, cost and utilization data and trends across years. Most importantly, the robustness and detail offer the opportunity to continuously drive improvement by identifying the critical factors that have the greatest impact within a strategy or program and monitoring the effects of interventions across time. In short, it creates a platform for effective data-driven decision-making that maximizes the efficiencies gained from collaboration across agencies.

1. Introduction

This project, referred to as “The 5 Agencies Project,” provided the five agencies named in Section 10.06 and UTHealth with a framework for undertaking an unprecedented and productive examination of the impact of their programs on the health of Texans.

This report summarizes the activities and outcomes of the first year of this initial two-year project, which runs from September 1, 2019 to August 31, 2021 and follows the directive from Section 10.06 to:

- Collaborate and develop a comprehensive structure for an integrated health care information system that will be used to compare data related to the health care systems funded by appropriations made to these agencies;
- Extract and receive data from agencies and agency vendors, convert data to standardized variables and values within the data warehouse and load data into the integrated health care information system;
- Create the foundation to analyze and compare health care data, including outcome measures, to identify individual benchmark and progress data for each agency and outliers and improvements for quality and efficiency that can be implemented within each health care system; and
- Facilitate cross-agency analyses that give policy-makers a more comprehensive picture of healthcare quality and efficiency in Texas than is currently available.

With the continuation of the project and contract with UTHealth, future steps will include:

- Trend analyses;
- Recommendations for programs, services, policy, or other strategies to implement identified best practices;
- Recommendations and evaluations on current potential for value-based payment strategies, including opportunities for episode-based bundling and pay for quality initiatives to maximize quality and reduce expenditures;
- Implementation of identified value-based payment strategies within and across agencies;
- Analysis of effectiveness of implemented strategies across years; and
- Analyses that consider the impact of the COVID-19 pandemic.

This report summarizes actions taken in the first 12 months of this project. To administer the data comparison, the agencies and the UTHealth Data Center met at least quarterly to carry out coordination activities. Considerable preparatory work was required to engage in legal agreements such as an Interagency Cooperative Contract (ICC), Memorandums of Understanding (MOUs) for data use and Business Associate Agreements (BAAs), some of which were accomplished before January 2020. Although the final interagency agreement was not completed until March 2020, the UTHealth Data Center and its agency partners engaged in project planning, agency coordination and data collection as noted on the Estimated Project Timeline (Appendix A). Between March and May 2020, the UTHealth Data Center worked on standardizing data elements, running descriptive analyses, and creating five initial interactive portals where results can be displayed and tailored by users. This milestone in the analytical work is summarized and detailed in the report.

Data sharing can be challenging, especially when data is considered Protected Health Information (PHI) and is subject to the Health Insurance Portability and Accountability Act (HIPAA) privacy rules; however, many obstacles were overcome and are noted within this report. Early and initial resolution of such obstacles has helped to lay a foundation for long term success in this endeavor.

2. Background

Texas has identified the rising cost of health care as a key issue affecting State finances. The 2018-19 GAA, Senate Bill (S.B.) 1, 85th Legislature, Regular Session, 2017 (Article IX, Health Related Provisions, Section 10.06), required HHSC to coordinate with DSHS, ERS, TDCJ and TRS to develop recommendations and a comprehensive plan for an integrated health care information system that can be used to compare data related to the health care systems funded by appropriations made to these agencies.² The five agencies formed the original workgroup and met frequently to collaborate and explore opportunities for building an integrated health care information system to compare utilization, costs, reimbursement rates and quality in each health care program. In 2017, experts from the UTHealth Data Center consulted with the workgroup, completed a pilot assessment of the ERS health plan — HealthSelect of Texas® (HealthSelect) — claims data at no charge and provided guidance on the process of data collection and analysis for the recommendations to the Legislature.

A companion rider in the 2018-19 GAA (Article IX, Health Related Provisions, Section 10.07) required HHSC, ERS and TRS (agencies with a large proportion of their budget dedicated to health care expenditures) to share information and collaborate, where possible, on approaches to improve value in their systems.²

The five named agencies submitted a report to the LBB and the Office of the Governor on May 1, 2018, describing similarities and differences among the programs, cost drivers and cost containment initiatives, options for meeting the goals of the rider and lessons learned, including the need to adjust for demographic and health acuity differences among populations for making valid comparisons among programs.³ The workgroup reported that meaningful data comparisons were achieved in the pilot with the UTHealth Data Center. It also concluded that the Center's experience and expertise in using health care claims and electronic health data to produce analyses would make it a good partner for future work that impacts treatment, policy, and payment systems. As a result of this report, the 2020-21 GAA expanded on Section 10.06 from the previous session, appointing and providing funding to the UTHealth Data Center to perform data collection and analyses.

³ Health and Human Services Commission, "Analysis of Certain Healthcare Data", May 1, 2018, <https://hhs.texas.gov/reports/2018/05/analysis-certain-healthcare-data>.

The workgroup, which now includes UTHealth, met in July 2019 to prepare for transitioning from a pilot project to a comprehensive information system. In the current phase, the UTHealth Data Center is working with the workgroup to build the infrastructure and conduct the analyses needed to facilitate the comparison of health care data within each agency and across all agencies to assess population health, utilization of health care services and expenditures. The main deliverable for the project's first year is the development of an integrated health care information system that is a sophisticated and comprehensive tool for identifying areas to improve the quality and efficiency of health care services provided to Texans. Ultimately, this data platform is expected to support advanced multi-agency/multi-payer collaborations on projects and programs to improve value in Texas health care.

3. Project Output and Accomplishments

Interagency Coordination

Since the project started September 1, 2019, the full workgroup has met six times and continues to meet bi-monthly to facilitate analytics, discuss and interpret findings and collaborate on meeting project goals and objectives. In addition, two subcommittees were established to meet monthly, the Strategic Governance Subcommittee and Data Subcommittee.

In the initial stage of the project, the workgroup focused on infrastructure development, executing contracts and agreements, developing timelines with project milestones, development of a network of data warehouses and the acquisition of data from multiple agencies. Some of the first documents developed to facilitate organization and flow of the project were the following:

- **Estimated Project Timeline** (Appendix A): a flowchart illustrating the major milestones of the project, the amount of time each task was estimated to take and the milestone completion date (noted in green). For the analysis of the data across agencies, the process flows linearly, and completion of each milestone is dependent on successful completion of those prior. Each agency also flowed through the timeline individually, and the status of each agency's data and analysis occurred at different points in the timeline depending on when their prior milestones were completed.
- **Data Analysis Plan** (Appendix B): a detailed strategy for data collection, data aggregation, data quality checks and data analyses.
- **Agency Data Resources** (Appendix C): visual depictions of the various types of data included in the analysis and the sources of the data for each agency. These schematics demonstrate the value in data assembly and reporting for each individual agency as well as the challenges related to data collection; they were referred to repeatedly in the data collection and quality review process.
- **Scope of Work (SOW)** (Appendix D): an attachment to the contract between UTHHealth and HHSC that serves as a cornerstone for coordinating the project's trajectory and details the following information: the directive from the legislature; project background; a summary of the overall objectives of the project for the current funding period, as well as what could be accomplished in future years; detailed lists of tasks and deliverables that

serve to accomplish the project goals and objectives, organized in a phased timeline (Phases I - IV); and a few basic details about the contract and payment structure.

- **Charter** (Appendix E): a document to govern the relationship among the agencies and provide guidance for decision-making. This document includes many details such as workgroup scope, subcommittees, critical success factors, assumptions, constraints, decisions, and membership.
- **Shared Resources Site**: a secure password-protected site that uses a secure file-sharing platform (Kiteworks) that enables all workgroup members' access to file sharing, including very large files.

Efficiencies Identified

From past projects, the workgroup learned there are variations between agencies that create challenges for comparing cross-agency data and reaching accurate conclusions. For example, the five agencies vary greatly in the populations they cover, the data available for cross-agency comparison and their data collection and reporting practices. Despite these known distinctions and the project's complex legal and technical requirements, representatives from the five agencies and the UTHealth Data Center have worked collaboratively to address the challenges and expect to produce meaningful results to improve health care quality in the project's second year (fiscal year 2021).

Primary Efficiency – Standardization of Complex Data Across Agencies

The workgroup developed solutions to the agencies' data variances and standardized data across agencies and data sources to allow for comparisons and accurate reporting. This aggregation of cross-agency data is a key achievement and has resulted in an efficient data analytics platform for the workgroup. A related efficiency has been realized from standardized analytical and reporting processes across agency reports which is a result of using a single, qualified data warehouse and analytics organization, the UTHealth Data Center. This approach eliminates variations in statistical methodology or reporting metrics and allows all reported metrics to be derived in the same manner to ensure comparability across agencies.

Key Successes in Achieving Standardization

Large Scale Data Collection

The workgroup has been successful in collecting and aggregating widely disparate data, in varying formats, from multiple sources and on an extremely large scale. Specifically, 680.3 gigabytes of data coming from 255 data sources comprising over 405 million health records (claim, visit, encounter, prescription) for an estimated 9.4 million persons over approximately three fiscal years and representing over \$96 billion in total dollars expended.

Rapid Development of Data Warehouses

The extensive effort of data collection and aggregation resulting in the primary standardization efficiencies described above has also involved other key successes for cross-agency efficiencies. These include the creation of five separate data warehouses that contain the data used to populate secure interactive agency data portals that were developed earlier than anticipated. Four data warehouses were initially created (one for each agency currently contributing data), and then the comparative warehouse was developed comprising specific data from all four agencies. These data warehouses were completed on an accelerated schedule, between one and four months after receiving the data from each agency.

Early Development of Portals

Early creation of agency data portals, with access given to agency representatives, allowed for coordination in data validation and review of reported rates and metrics. The section below ([Interactive Data Portals that Demonstrate Initial Cross-Agency Comparison of Health Care Data](#)) provides detailed information about the data portals.

Other Key Initial Findings

Other important benefits related to efficiencies that have been achieved are summarized as follows:

1. Initial cross-agency analyses have highlighted differences in agencies' data collection, services and populations served. Processes implemented through the 5 Agencies project have made this data more comparable allowing improved analyses of variations in utilization, expenditures, and outcomes. Additionally, changes that may be attributable to adjustments in plan/benefit design or vendor contracts can be tracked and reported across years to

- identify trends to better understand and learn from changes in population and services delivered that might be adopted across agencies;
2. Initial reports defining costs/payments, population demographics and population health are critical for the identification of outlier areas and potential cost drivers that will prompt more detailed analyses in continuing phases of the project;
 3. Additional state agencies and institutions have been identified that could be added to enhance the project in future years, e.g., juvenile justice system, state inpatient psychiatric hospitals, state supported living centers (SSLCs) and State universities' and colleges' employee health plans;
 4. COVID-19 has also highlighted the advantages of an aggregated data project. The workgroup has discussed the opportunity, when data become available, to analyze impacts of COVID-19 on utilization and outcomes of key services by each agency; and
 5. Future analyses on a finer geographic level using TRS, ERS and HHSC data, all of which provide coverage across Texas, will present an opportunity to evaluate rural health and health care needs.

Interactive Data Portals that Demonstrate Initial Cross-Agency Comparison of Health Care Data

UT Health, in conjunction with the workgroup agencies, created secure interactive agency data portals from the data warehouses to provide authorized users access to reports that have been formatted and organized to allow for retrieval of agency-specific information. The data within the data warehouses is linked to web-based Tableau® tools that support advanced data visualizations and reporting. Each agency's interactive portal (currently in beta version) allows authorized users to select from multiple analytic categories (represented as page tabs). The categorical tabs contain additional variables that can be selected to generate a variety of information about agency populations and other metrics of interest about agency-specific information. Most importantly, an interactive comparative data portal provides authorized users with data across all agencies to enable comparisons. Greater detail is shown in the example screenshots below from the comparative portal where comparative data is visually reported to demonstrate the variation among agencies.

(Please note that the results in the screenshots are preliminary and are continually updated and revised as data checks are implemented and data refreshes occur.)

Figure 1. Comparative Portal - Age Demographics

Fiscal Year
 ○ 2016
 ○ 2017
 ● 2018

Select Combo Demo Metric
 ○ Unique Member Count
 ● Average Annual Count

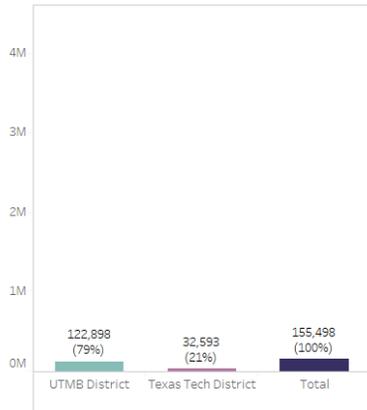
TDCJ
 ■ UTMB District
 ■ Texas Tech District
 ■ Total

TRS/ERS Employee Enrollment Status
 ■ Active Self
 ■ Active Dependent
 ■ COBRA Self
 ■ COBRA Dependent
 ■ Retiree Self
 ■ Retiree Dependent

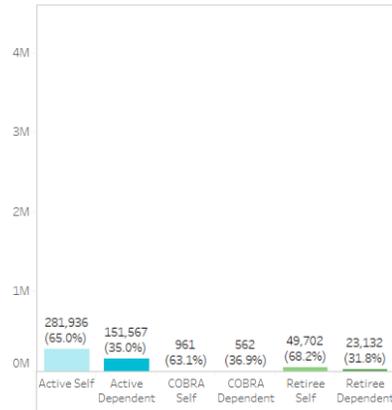
Medicaid Program
 ■ FFS
 ■ STAR
 ■ STAR HEALTH
 ■ STAR KIDS
 ■ STAR PLUS
 ■ CHIP
 ■ TOTAL
 ■ DUAL ELIGIBLE



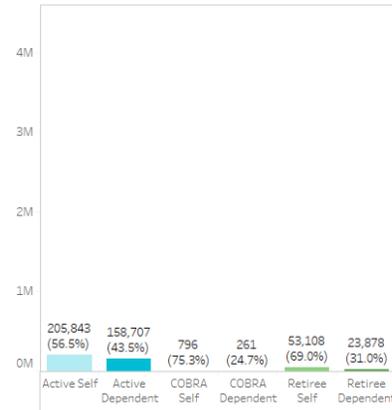
Average Annual Count



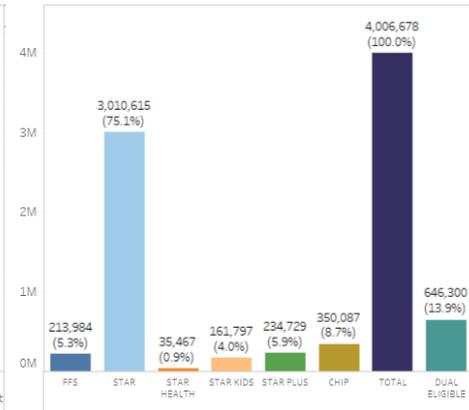
Average Annual Count



Average Annual Count



Average Annual Count



TDCJ District



TRS Employee Enrollment Status



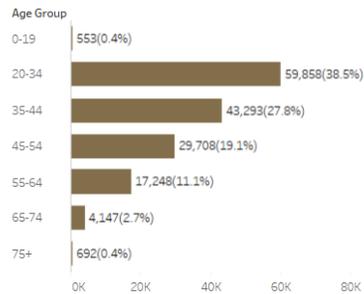
ERS Employee Enrollment Status



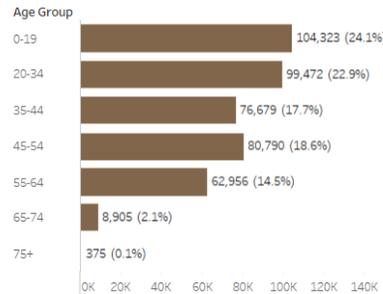
Medicaid Program



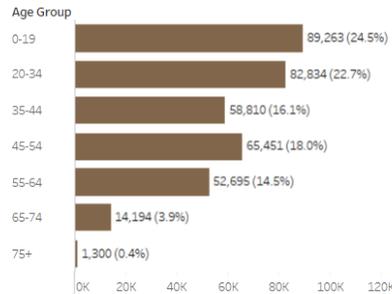
Total Average Annual Count



Average Annual Count for Active



Average Annual Count By Active



Average Annual Count by Age Group for STAR

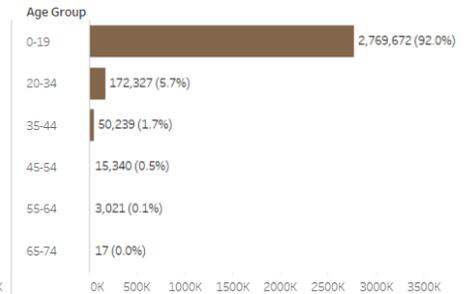


Figure 2. Comparative Portal - Prevalence Rates

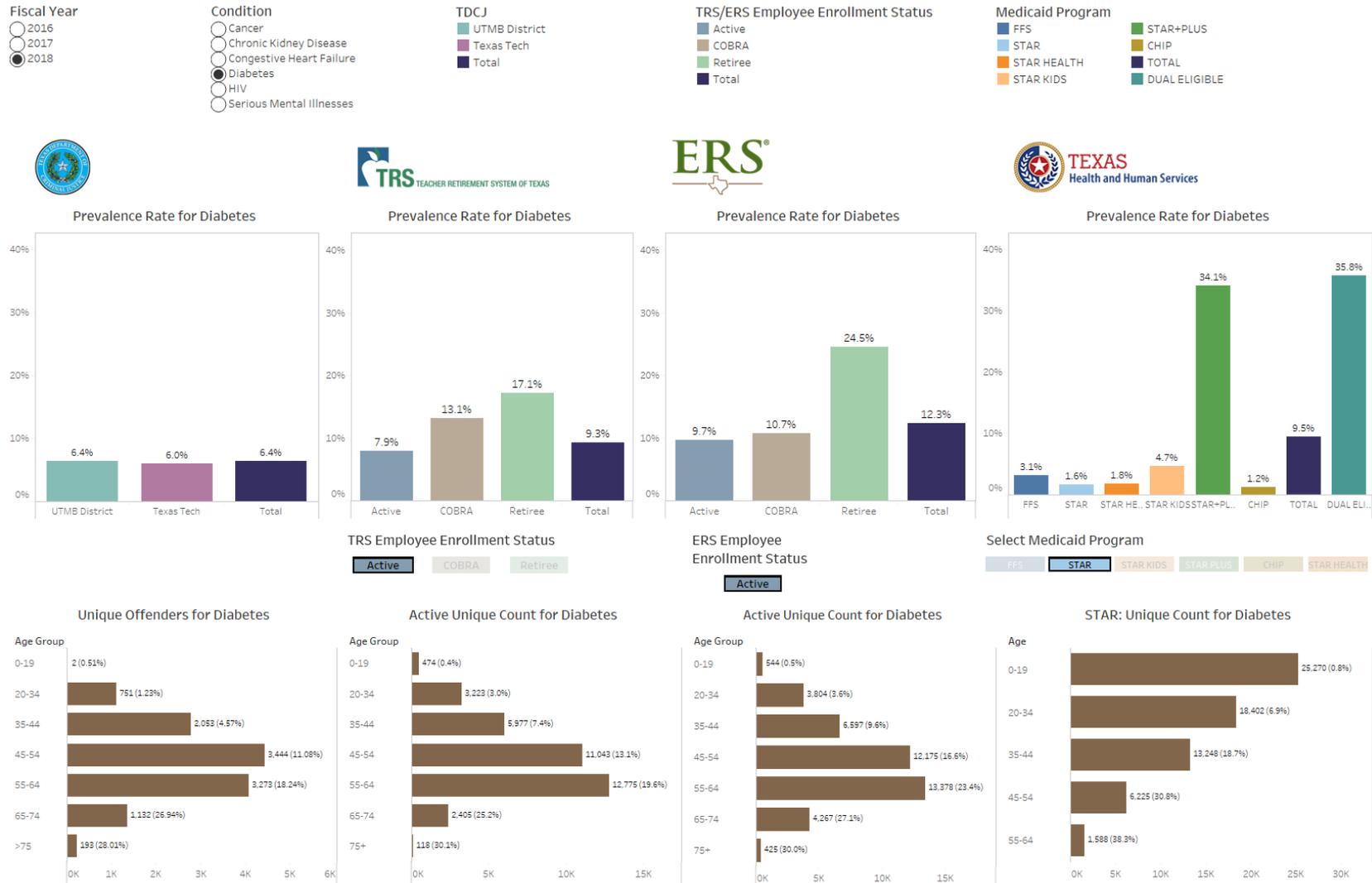


Figure 3. Comparative Portal – Expenditures

Fiscal Year
 ○ 2016
 ○ 2017
 ● 2018

Select Cost Metric
 ○ Average Total Medical Cost PMPY
 ○ Average Rx Cost PMPY
 ● Average Total Cost PMPY (Medical and Rx)

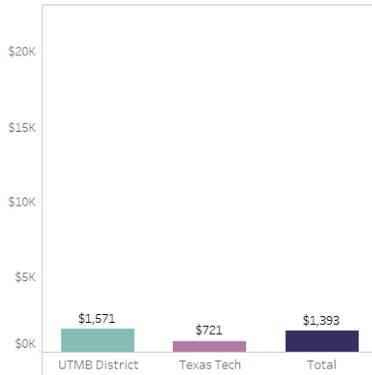
TDCJ
 ■ UTMB District
 ■ Texas Tech
 ■ Total

TRS/ERS Employee Enrollment Status
 ■ Active
 ■ COBRA
 ■ Retiree
 ■ Total

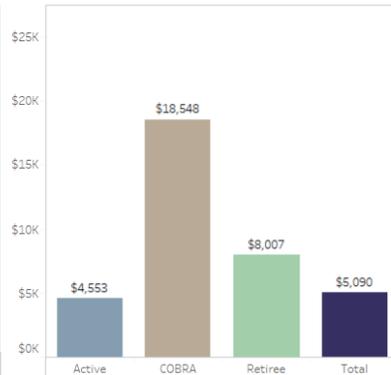
Medicaid Program
 ■ FFS
 ■ STAR
 ■ STAR HEALTH
 ■ STAR KIDS
 ■ STAR PLUS
 ■ CHIP
 ■ TOTAL
 ■ DUAL ELIGIBLE



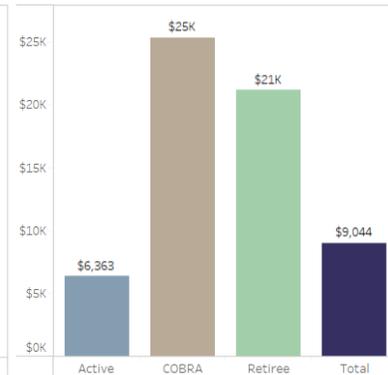
Average Total Medical Cost POPY



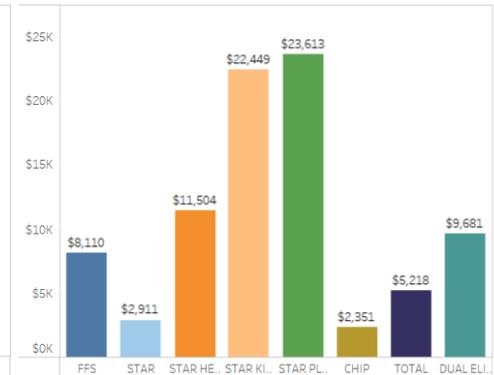
Average Total Cost PMPY (Medical and Rx)



Average Total Cost PMPY (Medical and Rx)



Average Total Cost PMPY (Medical and Rx)



TRS Employee Enrollment Status



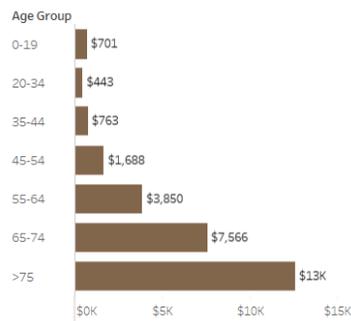
ERS Employee Enrollment Status



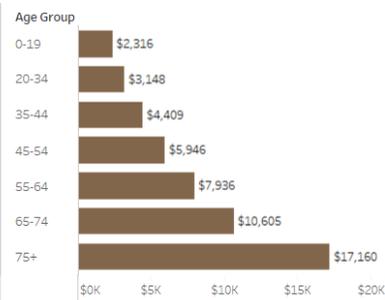
Medicaid Program



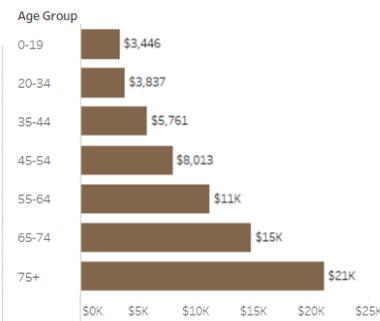
Average Total Medical Cost POPY



Active: Average Total Cost PMPY (Medical and Rx)



Active: Average Total Cost PMPY (Medical and Rx)



Average Total Cost PMPY (Medical and Rx) for STAR

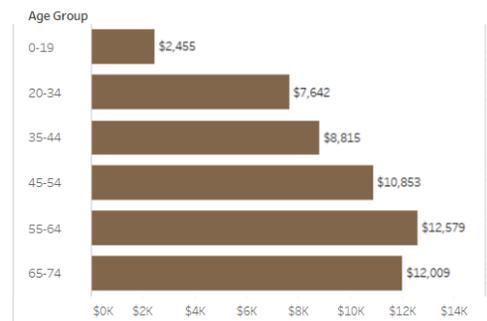


Figure 4. Comparative Portal – Utilization

Fiscal Year
 2016
 2017
 2018

TDCJ
 UTMB
 Texas Tech
 Total

TRS/ERS Employee Enrollment Status
 Active
 COBRA
 Retiree
 Total

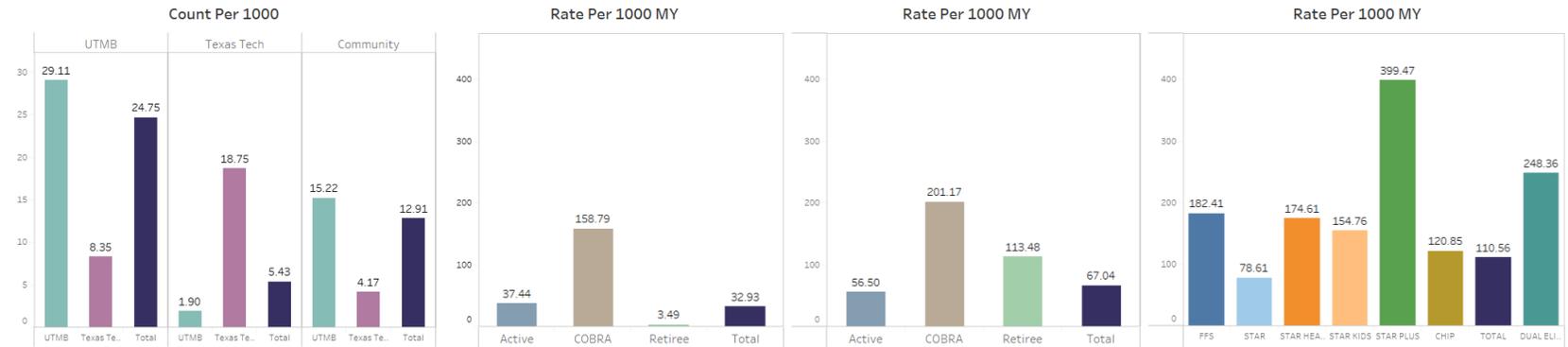
Medicaid Type
 FFS
 STAR
 STAR HEALTH
 STAR KIDS
 STAR PLUS
 CHIP



TDCJ: Visit Type
 Emergency Visits with no Inpatient Admission
 Inpatient
 Outpatient
 Professional

TRS, ERS & HHSC: Admission/Visit Type
 Emergency Visits with no Inpatient Admission
 Acute Hospital Admission
 Acute Hospital 30 Day Readmission

TRS, ERS & HHSC: Select Utilization Metric
 Count of Admissions/Visits
 Rate



Service Provider
 UTMB
 Texas Tech
 Community

TRS Employee Enrollment Status
 Active
 COBRA
 Retiree

ERS Employee Enrollment Status
 Active
 COBRA
 Retiree

Medicaid Program
 FFS
 STAR
 STAR HEALTH
 STAR KIDS
 STAR PLUS
 CHIP

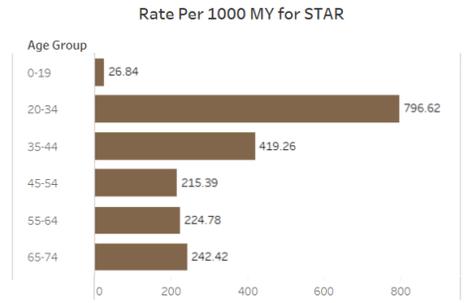
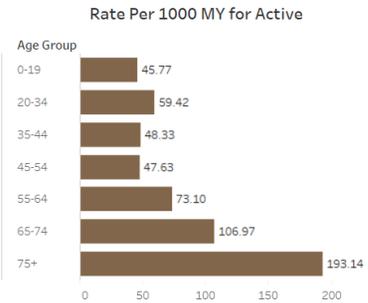
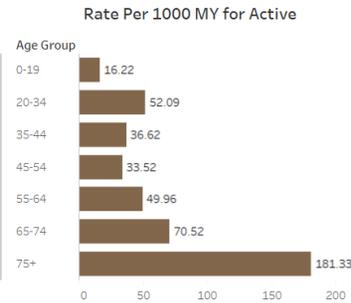
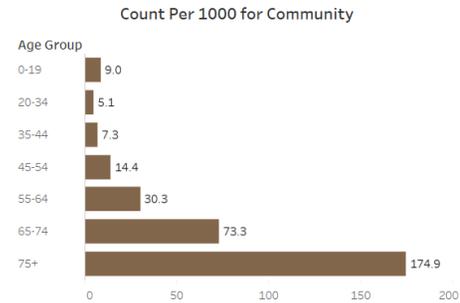


Figure 5. Comparison Portal - Utilization Cost

Fiscal Year
 ○ 2016
 ○ 2017
 ● 2018

Admission/Visit Type
 ● Acute Hospital Admission
 ○ Emergency Visits

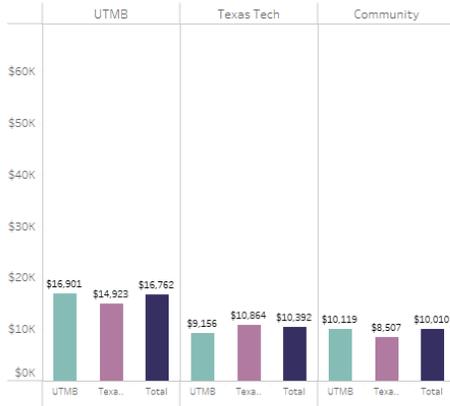
TDCJ
 ■ UTMB
 ■ Texas Tech
 ■ Total

TRS/ERS Employee Enrollment Status
 ■ Active
 ■ COBRA
 ■ Retiree
 ■ Total

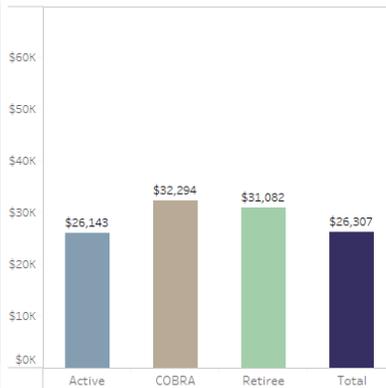
Medicaid Program
 ■ FFS
 ■ STAR
 ■ STAR HEALTH
 ■ STAR KIDS
 ■ STAR PLUS
 ■ CHIP
 ■ TOTAL
 ■ DUAL ELIGIBLE



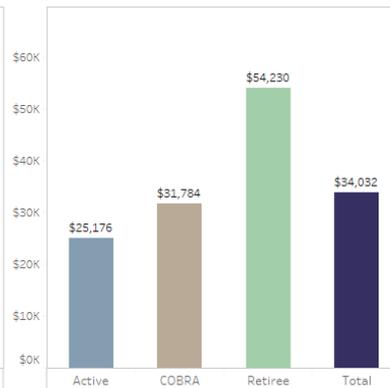
Acute Hospital Admission: Average Allowed Amount Per Visit



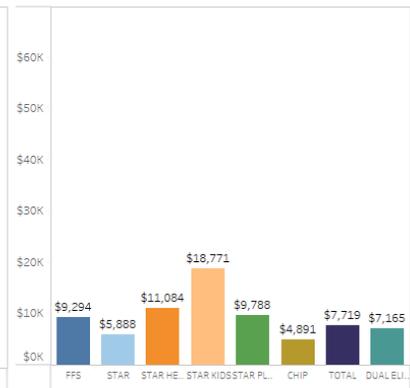
Acute Hospital Admission: Average Allowed Amount Per Visit



Acute Hospital Admission: Average Allowed Amount Per Visit



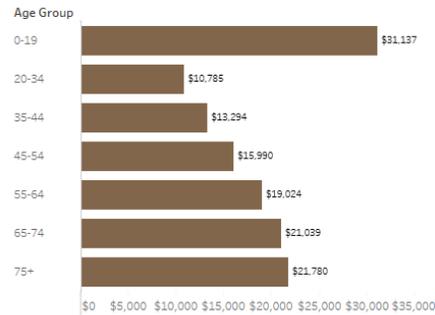
Acute Hospital Admission: Average Allowed Amount Per Visit



Service Provider

■ UTMB ■ Texas Tech ■ Community

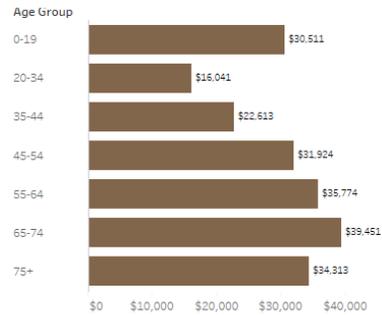
Average Allowed Amount Per Visit for UTMB



TRS Employee Enrollment Status

■ Active ■ Cobra ■ Retiree

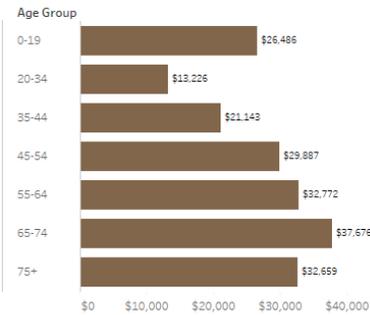
Average Allowed Amount Per Visit for Active



ERS Employee Enrollment Status

■ Active ■ COBRA ■ Retiree

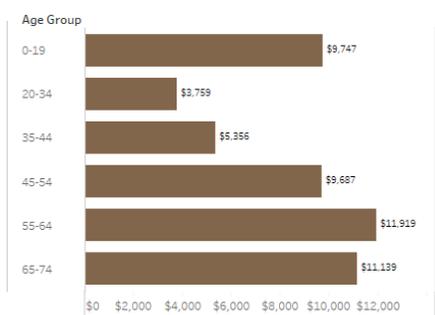
Average Allowed Amount Per Visit for Active



Medicaid Program

■ FFS ■ STAR ■ STAR HEALTH ■ STAR KIDS ■ STAR PLUS ■ CHIP

Average Allowed Amount Per Visit for STAR



In addition to the comparisons shown above, examples of agency portals and the related tabs are found in Appendix F. Development of each reporting portal began as each agency's data flowed through the process, running parallel to the data collection, quality assessment and analyses tasks underlying the reports. While the interactive portals for data reporting are among the final project deliverables and shown on the timeline late in the project cycle, these complex tools are integral to the project and will provide deeper analyses specific to each agency.

Summary of Initial Data Analyses by Agency and Cross-Agency

This report provides a summary of initial data analyses for fiscal years 2016 through 2018, including:

- Demographic information on populations covered
- Costs/payments and trends for select population groups within each agency (note: for HHSC 2018 data did not become available until shortly after the drafting of this report)
- Key utilization facts and identify trends for select population groups within each agency
- Key chronic conditions and prevalence rates, costs, and utilization for each population group within each agency
- Comparative benchmarks or expected rates for payments, as well as utilization and prevalence rates when appropriate
- High cost claimant trends and identify trends for select population groups within each agency
- Assemble data, analyses, and findings in an agency-specific portal
- Review all data for accuracy compared to agency vendor reports or annual reports
- Review each agency-specific data portal and all data findings with agency representatives, obtaining feedback and identifying key issues for more detailed assessment in the next phase of analysis
- Create a separate portal for comparative data findings across the four data reporting agencies that highlights the distinctions in population demographics, costs and payments, utilization rates and prevalence rates

Initial analyses will serve as a starting point to identify variances from expected rates or benchmarks, potential cost drivers and other anomalies that need to be explored to identify opportunities for intervention or improvement in fiscal year 2021. Also, in the next phase, the UHealth Data Center will expand the analyses

to include: risk assessment, assignment, and comparison; additional prevalence rates and assessment of chronic conditions; review of complex procedures, i.e., rates and payments; select outcome measures; adjustment for plan design differences; and quality metrics.

In the second year, the UTHealth Data Center will provide a review of value-based strategies used by health plans and, especially, strategies implemented by health plans in coordination with state programs. The workgroup will strategize using data findings, outcome analyses and value-based strategies to develop recommendations for Texas.

Caveats for Data Comparisons

Data Limitations and Considerations

The following are limitations on interpreting the findings resulting from the data analyses:

- The ERS Retiree population includes Medicare-eligible retirees who have opted out of the HealthSelect Medicare Advantage plan (and their dependents), whereas TRS moved Medicare eligible retirees and their dependents to a Medicare Advantage program. Claims and payment data for this TRS population were not included in this study. Additionally, Medicaid does not have a member category equivalent to retired employee, although persons over age 65 are included in claims and encounter data based upon enrollment.
- Some ERS and TRS costs were not included, such as capitated benefits (e.g., Behavioral Health for ERS [note: this will change 09/01/2020] and fully-insured plans for both ERS and TRS), disease management services, other contracted consultants or services, and benefit department operational and management costs. These expenses were considered out-of-scope for the health plans.
- For HHSC, fiscal year 2018 data were loaded but not yet converted for use in these analyses (as of the drafting of this report). Operational and management costs as well as costs for Disproportionate Share Hospital (DSH), Uncompensated Care (UC) and Delivery System Reform Incentive Payment (DSRIP) programs were not included. Data for Healthy Texas Women (HTW) will be available for future reports. Individuals who are dually-eligible for Medicaid and Medicare eligible are reported separately. In addition, HHSC data includes service utilization and payments for long-term services and supports (LTSS) provided through Medicaid managed care

organizations (MCOs). LTSS fee-for-service data will be available for future reporting.

- Agencies' analytic staff have reviewed summary data included throughout the report. The data are considered complete at time of publication; however, data are subject to change due to claims adjudication and the parameters used for particular analyses. Member counts are not additive because members can be in more than one program in a year. Additionally, it is important to note that at the time of this document, verification of data and results was still ongoing, thus reported numbers may change with updates.
- TDCJ claims costs are based on charges and do not reflect total contract capitation payments to its two university health system partners, the University of Texas Medical Branch (UTMB) and Texas Tech University Health Sciences Center (TTUHSC). Overall annual costs per offender are derived from total program operating expenses, whereas specific treatment costs are derived from claims data. Additionally, the universities have different methods for recording services delivered and associated costs, and in many cases a cost amount was not assigned for services delivered on site or at some contract sites. Reported costs for TDCJ health care services include some items not included by the other agencies, such as indirect administrative costs not directly related to the provision of health care services and co-pays. Differences in how outpatient visits, diagnostics and professional services are captured preclude a comparison between TDCJ's two vendors, UTMB and TTUHSC, for cost per offender per year. Offenders frequently change locations and assignment to UTMB or TTUHSC fluctuates.
- Some TRS data was received from an intermediary and required corrections and refreshes due to data errors or omissions. Data from vendors who were no longer contracted could not be updated, and historical files were utilized for 2016 and 2017 pharmacy data, except for retiree data, which could not be used. Pharmacy data for 2016 appears incomplete. Medicare Advantage Retiree data had to be removed for 2018 because costs were not carried by TRS, yet non-Medicare eligible Retiree dependents remained in the standard plan. HMO plans were not included.
- Over the course of six months (October 2019 to April 2020), workgroup discussions reviewed relevant data maintained by DSHS that could be included in the project. The workgroup identified the Texas Health Care Information Collection program's (THCIC) hospital discharge and related data, as well as Vital Records birth and death record data, as having value for future cross agency quality improvement focused analytics. A data

request, including information on specific uses for the DSHS data sets, is currently under development.

Key Differences Among the Agencies

The five agencies each have key features or design elements that distinguish their health care programs. The following information provides an initial comparison of the data findings for four agencies regarding services and program design, payment/cost, population demographics and population health.

Populations Served

The services provided by the agencies included in this report account for a significant proportion of the State's health care budget. These agencies provide health care services for the following populations residing in Texas (see Table 1. 2018 Members):

- TRS and ERS both offer employer-sponsored health plans for employees across the state. Claims and encounter data are available through these systems for analysis of health benefits payments and population health.
- TDCJ provides all medically necessary health care to incarcerated persons through contracted managed care systems. Some claims and encounter data are available, providing estimated charges which are not equivalent to payments, and some data merely provide records of services without costs/payments associated. Additionally, the overall costs of TDCJ health care services include operational costs not directly associated with the provision of health care services to offenders.
- HHSC provides health care coverage for the Medicaid and CHIP programs, which primarily cover low income children, families, seniors, and people with disabilities. HHSC has a fee-for-service (FFS) traditional payment system, through which the state pays claims directly, but 95 percent of Medicaid and CHIP enrollment is with capitated managed care plans.⁴ These plans are required to submit encounter data to the state at a level of detail similar to claims. The claims and encounter data provided by HHSC were analyzed to determine payments by the capitated managed care plans and by Medicaid FFS to providers.

⁴ Not including enrollees receiving partial benefits (emergency Medicaid and some dual eligible categories).

Similar analyses were possible for the three agencies that provided claims and enrollment information, specifically ERS, TRS and HHSC Medicaid and CHIP. Analyses for TDCJ were conducted in a similar manner, however direct costs (as assessed by payments) were not fully represented. Additionally, due to the wide variety of data collection methods, UTHealth Data Center applied significant effort to enable data from various TDCJ sources to be comparable with data from the other agencies.

2018 Health Plan Design

Each agency has unique health plan designs to benefit the people they serve.

- ERS' health plan enrollment is primarily in HealthSelect, a point-of-service plan⁵ designed to meet a two-pronged goal of realizing optimal health outcomes and equipping state agencies and institutions of higher education with a benefit that attracts and retains a qualified workforce.
- For HHSC, most members are enrolled in managed care plans paid by HHSC under capitation, and only a small portion of members are enrolled in the FFS plan. Reported payments are derived from MCO claims and encounters and do not fully reflect the State capitation expense.
- Additionally, HHSC covers many services for eligible members that are not offered by the other agencies' plans, such as LTSS, attendant care, vocational training, and residential living.
- Health care services for TDCJ are contracted primarily through two vendor managed care systems, UTMB and TTUHSC. UTMB has two hospital facilities within their system, and TTUHSC contracts with a community hospital. Also, UTMB services most of the offenders with severe health conditions, as well as the HIV population. Both systems provide physician and professional services through their network, and TDCJ utilizes community providers for emergent and unexpected treatment needs under an agreed fee structure.
- For TDCJ, overall operation costs and costs associated with health care delivered on-site (at the prison facilities) as well as certain contracted services such as telehealth programs and mental health services are reflected in the count of services through Pearl® (prison electronic health documentation) but not actually assigned a cost as an individual claim. Therefore, the costs associated with these expenses cannot be calculated

⁵ A point-of-service plan provides both in-network and out-of-network benefits but requires the designation of a primary care physician (PCP) and referrals to see specialists.

comparably to the other agencies providing claims and encounter costs for services.

- TRS has multiple plan options with differing benefit designs for enrollees. For example, they offer high deductible plans and accountable care organization (ACO) options. Medicare-eligible retirees are moved to Medicare Advantage plans. It is important to note that reported payments and rates reflect aggregated results (specific breakouts by plan design are available).

Payment/Cost Information

The following table provides a comparison of the key metrics for each agency in fiscal year 2018. In total, the four agencies provided health coverage and/or services to over five million persons annually at an expense of about \$34 billion.

Table 1. 2018 Agency Comparison^a

	ERS	HHSC^b	TRS	TDCJ Reports^c
Annual Average Covered Persons Counts ^d	433,353	4,006,678	507,861	148,185
Total Annual Expenditures (Medical and Pharmacy)	\$3,222M	\$20,906M	\$2,585M	\$7,075M

	ERS	HHSC^b	TRS	TDCJ Reports^c
Average Total Annual Expenditures Per Member/Offender Per Year (Medical and Pharmacy)	\$5,032 ^e	\$5,218	ACO Plan: \$2,872 ^e Active Care 2 Plan: \$5,947 ^e Active Care HD Plan: \$3,197 ^e Open Select Plan: \$3,913 ^e	\$4,774

^a Agencies' analytic staff have reviewed summary data included in this table and throughout the report. The data are considered complete at time of publication; however, data are subject to change due to claims adjudication and the parameters used for particular analyses.

^b HHSC data are combined for Medicaid and CHIP and do not include duals, HTW, DSH, UC or DSRIP.

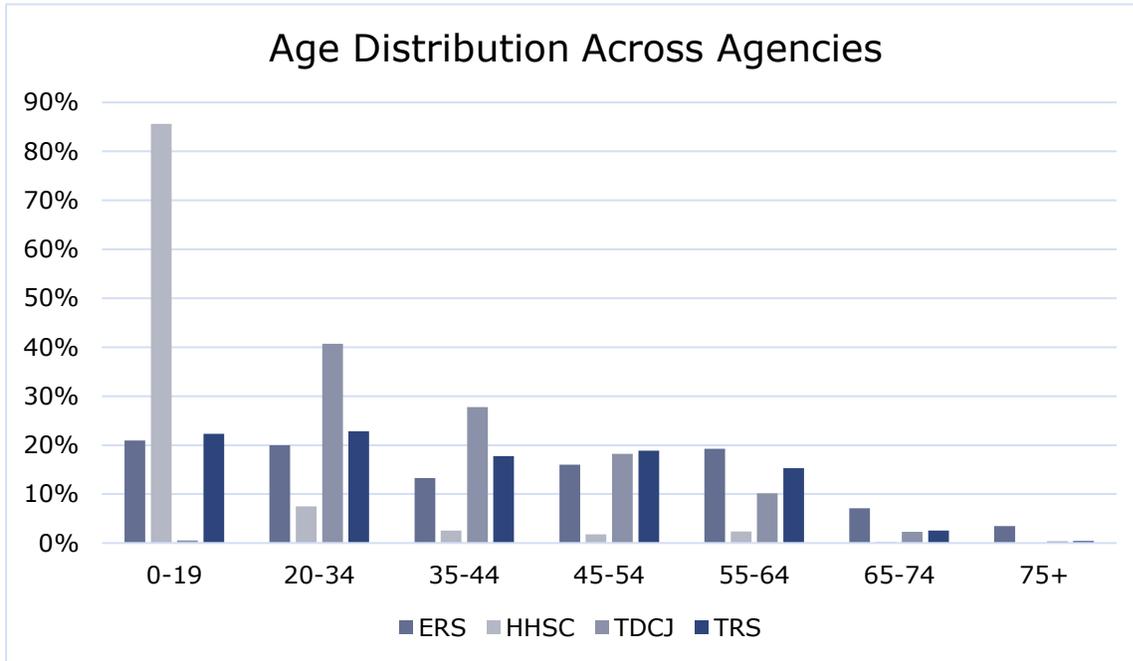
^c TDCJ reported numbers from annual report, fourth quarter 2018.

^d Member Year (MY) counts are calculated based on total member months for a year divided by 12 and will be smaller than unduplicated member counts. Member counts are not additive because members can be in more than one program.

^e Per Member Per Year (PMPY) amounts for ERS and TRS are for active employees and their dependents only.

Demographics – Age

Figure 6. Distribution of Age Across Agencies



- About 40 percent of ERS’s enrollee population is under age 35, just under 50 percent are between 35-64, and 10 percent are age 65 and over.
- More than 85 percent of HHSC’s population are under age 20, and less than 3 percent are age 55 and over.
- 41 percent of the TDCJ offender population is between the ages of 20-34, with less than 1 percent under age 19 and less than 3 percent age 65 and over.
- TRS’ enrollee population is young with 45 percent under age 35 and less than 4 percent age 65 and over.

Improvements in Policies and Practices

The workgroup focused primarily on data collection processes in the initial year of the project, but agencies were able to identify improvements to agency policies and practices because of the application of the data.

Data Aggregation in One Location and One Format

Each agency made important contributions to an aggregated data warehouse to produce cross-agency comparisons from one location using a common format. The establishment of the practices and policies associated with data transfer and data sharing will facilitate future data exchanges.

Data Verification and Validation with Agency and Vendor Reports

UTHealth Data Center and representatives from each agency continue data verification and validation activities to ensure accuracy and completeness of data prior to reporting and acceptance of findings. Data counts and metrics were compared to those previously reported by plan vendors or annual reports. Additionally, any discrepancies were discussed and reviewed with the agency representatives to resolve data issues or interpretations. As of the date of this report, this data verification and validation is continuing to ensure an acceptable level of accuracy.

Agency Access to Data Portals for Visualizing Data

Access to the data portals allows agencies the opportunity to visualize data categories (e.g., demographics, utilization, expenditures) and see trends across years. The portals also allow agencies to make comparisons among populations such as age groups, gender, and health plan enrollment status (e.g., Active employees, Consolidated Omnibus Budget Reconciliation Act [COBRA] employees, Retirees, dependents, and Medicaid/CHIP program). For most agencies, this is the first time they have had access to this type of comparative data. Representatives from each agency may access their agency-specific portal to allow them continuous review as data are updated and revised.

Agency-Specific Improvements

Enhanced Understanding of Data Resources (TDCJ)

TDCJ, as well as the other agencies, found aggregation of data to be highly useful and informative. Data aggregation accomplished through this project has allowed TDCJ to identify utilization across contractors and community providers based on offenders' assigned correctional facility. The TDCJ data schematic (Appendix C-3) is by far the most complicated of the agencies because offenders access care in multiple environments, and each environment has different processes and systems of capturing care and/or documenting cost or receiving payment. In addition, TDCJ

has contracted with UTMB and TTUHSC to manage and/or provide health services to incarcerated adult offenders. The TDCJ schematic is color-coded to help explain where care is provided, which vendor (UTMB or TTUHSC) is responsible for the facilities, and what type of data is produced.

Internal Expertise (TRS)

The coordination directed by Section 10.06 has provided a good opportunity to increase agency internal expertise with data. For example, the UTHealth Data Center provided TRS with important time-saving assistance on coding for data aggregation and analyses that TRS is now using internally. TRS is expanding their analytics team. Understanding that knowledge of claims data analytics is very specialized, they collaborated with UTHealth Data Center experts to identify best practices and processes. The UTHealth Data Center has provided training, created coding for analyses and made other related recommendations as part of this collaboration.

Recommendations

Year one of the 5 Agency initiative involved extensive efforts to build a new cross-agency data system. Using the collected cross-agency data and ongoing data refreshes, the workgroup will continue to analyze and explore the data to identify and discuss findings.

In year two of the initiative (fiscal year 2021), recommendations will be drawn from these data findings on opportunities to reduce costs and improve quality across agency health care systems, per Section 10.06. As part of this process, the workgroup will explore federal and other funding opportunities enabled by access to multi-payer data to advance value-based payment (VBP) in Texas healthcare and to identify and calculate key metrics for use in VBP. Some future analyses may focus on cross-agency impacts related to the current COVID-19 crisis.

At the end of the initial two years of the 5 Agencies Project, the workgroup will evaluate further updates on important data findings as well as details on the recommendations for individual and collaborative actions to improve efficiency and effectiveness among and between agencies. The in-depth examination of the initial data analyses and findings during the second year will allow for further identification of efficiencies, more improvements to individual agency policies and practices and targeted recommendations on ways to apply the data tools for future

strategies and efforts, including the added benefits of continued and expanded data analytics.

4. Process

Data Collection Process

Once all sources of data collection and aggregation were identified, the UTHealth Data Center, with the collaboration of agency representatives, conducted administrative measures for data acquisition which included: acquisition of data layouts and data dictionaries for each data source; agreements with each agency for the acquisition and use of their data; agreements with each data source or vendor (e.g., Blue Cross Blue Shield, Aetna) for acquisition and use of their data; establishment of secure file transfer protocols (SFTP) that complied with HIPAA privacy and security requirements; and data mapping (i.e., a process that maps data variables to a common data warehouse structure).

Once the preliminary steps noted above were completed, many of which were performed simultaneously, the UTHealth Data Center was able to begin data collection and data processing. Figure 7 illustrates the process for data collection and aggregation into the UTHealth Data Center data warehouse. The steps identified in green represent the processes required to collect data, integrate data, and conduct data quality checks to ensure data completeness and validity. UT Health cannot conduct analyses with confidence until data completeness and validity are confirmed. Once confirmed, UT Health then conducts the initial data analysis to define populations as well as costs and utilization metrics for each agency population. This process is denoted in the last box shown in green, and it represents the current state of this project, resulting in this initial report.

The second year of this project (fiscal year 2021) will allow for more detailed and focused analyses per agency and across agencies, as shown in the blue process boxes. At these upcoming stages, data will be enhanced by applying logic to calculate clinical episodes, clinical condition groups and potentially preventable events to best assess utilization and potential for efficiency improvement. Specific quality metrics will be calculated to identify clinical outcomes, patient safety indicators and health care effectiveness and efficiency metrics. The quality metrics from each agency will be custom-analyzed to identify specific cost drivers, investigate unexpected findings, and identify potential areas for improvement or intervention.

Figure 7. Schema of Overall Process of Data Analysis



Project Implementation Challenges and Resolutions

Legal Agreements

Participating agencies planned to begin the 5 Agencies Project at the start of the 2020-21 biennium (September 1, 2019), including holding the planning meeting in July 2019. The data governance and legal framework for the project is extremely complex, requiring review of numerous agency and agency contractor requirements, subcontractor arrangements, the establishment of six separate MOUs for data use and completion of an ICC (master contract). Working through these complexities and implementing all required contracts is a significant accomplishment for the first year of the project.

UTHealth and HHSC completed development of an ICC for this project in March 2020. In addition to the ICC, each agency entered into separate agreements with UTHealth to govern the use and protection of their individual data sets. Some vendors required additional protections such as non-disclosure agreements (NDAs) and/or data use agreements (DUAs) to allow UTHealth access to their data. While the data acquisition process began as early as July 2019, all data could not be delivered until the ICC and all legal documents were complete.

While the agencies worked to complete all required legal, contractual, and technical agreements, all parties continued, in good faith, to complete as much of the work as possible without violating regulations around data privacy and other regulations. UTHealth agreed early in the project planning to underwrite a significant portion of the estimated project cost and believed the seven months of non-sponsored work (i.e., the work completed without an executed contract) supported this commitment.

Data Collection

The technical challenges to map and extract complex data cannot be overstated. Each of the 255 data source files are unique with a variety of file layouts, variables, identifiers, and other data parameters that constituted many different types of data, formats, and codes (see Appendix C. Agency Data Sources). Each agency uses a different data platform most suitable to their operational needs. Identifying common data elements in each system and subsequently structuring queries to extract relevant data required input from many people, including multiple departments at each agency, their third-party vendors, the UTHealth Data Center and the 5 Agencies Project Data Subcommittee. For some agencies, it took many

brainstorming meetings to get a clear picture how the data owners define and capture data. For others, it took months to resolve format, encryption, and compatibility issues to allow the UTHealth Data Center to download the data and map the data warehouse.

UTHealth Data Center mitigated challenges with the receipt of data through early data management using the schematics and data dictionaries, allowing for faster data integration once data were received. Quality checks for data completeness and data validity by the UTHealth Data Center and the five agencies identified data issues that were resolved through communication and collaboration with agencies and their designated vendors. That said, the resolution of some data issues is still in progress and some data limitations may remain for the duration of the project (as reported above).

Collaboration has played a pivotal role in resolving technical issues. Throughout this process, the UTHealth Data Center and the five agencies have cooperated to use the best data available to produce initial tables and graphs that provide important insights into the cost and outcomes of health services. These visuals will continue to be updated and refined during the second year of the project.

5. Next Steps in Year 2 – Fiscal Year 2021

Targeted Analyses and Comparisons

Throughout the continuing process of data analyses, the UTHealth Data Center will work with each agency directly to explore findings and target analyses. Deeper data reviews, based on initial findings, will be conducted to explain, and dissect anomalies and identified cost drivers or impediments to efficiency and effectiveness. This process is described in detail in Appendix G. Data Analysis for Quality Assessments.

UT Health, in consultation with the respective agencies, will expand the agency portals to include future analytical reports. Authorized agency representatives will be provided with continued controlled access to their secure portal for agency data exploration needs. Ultimately, the agencies will have ongoing access to an analytic tool that will allow them to query data directly and create customized reports.

Additional Review

The five state agencies' health care systems face distinct challenges based on who they serve, how they are funded and how they deliver care. However, even with these differences, the agencies manage similar cost drivers and share the same overarching aims to improve outcomes and health while containing costs.

In the second year of this project, the workgroup will apply the findings through cross-agency collaborations for improved benefit design, service provision, cost management strategies, and most importantly, improvement in population health. Overall, the aims of this project are the following:

1. Improving the patient experience of care (including quality)
2. Improving the health of populations
3. Reducing the per capita cost of health care
4. Improving provider work-life

Efforts by the five agencies to make simultaneous improvement along these aims is consistent with a vision for value in health care that maximizes quality while minimizing cost. To this end, the second phase of this project will explore options related to value-based program design and potential value-based payment strategies, including opportunities for episode-based bundling and pay for quality

initiatives. The workgroup will review approaches by other states and entities, and together develop a coordinated value-based and/or quality improvement strategy that prioritizes areas with highest potential for improvement. The agencies will share information on best practices for promoting value in health care, including experiences with alternative payment models, performance-based contracting, incentive programs, recognition programs and continuous quality improvement approaches. This quality improvement work will be supported by expanded data analytics from the project's comprehensive, integrated information platform built to identify common issues and trends across different agencies' health care programs.

Opportunities for cost savings, within and beyond value-based strategies, will be explored to identify implementation actions that can generate combined efficiencies. Potential actions to streamline administrative burdens on agencies, health plans, providers and/or patients will also be explored.

6. Conclusion

The first year of this project has demonstrated the potential of taking disparate health care data sets and translating them into information for each agency and across agencies. The creation and implementation of separate data warehouses as well as an integrated health care information system and the presentation of data portals is the first step to exploring its value. It has not been easy or straightforward; however, each agency's representatives have worked in good faith with the UTHealth Data Center to overcome obstacles while remaining faithful to the objectives of the project and the imperative to comply with all relevant state and federal regulations.

Initial results have established baselines and trends and have revealed a series of opportunities to delve deeper into the data. There is still much work to be done to ensure that comparisons account for the significant differences in each agency's populations and variances in plan designs and delivery systems. These variations are also opportunities to identify best practices and root causes that can be shared by the five agencies as well as others who provide health care services for Texas residents. Continuing to monitor trends, identify outliers (both positive and negatives) and delve into root causes provides a map for continuous improvement both in health outcomes and the efficient use of state resources.

Agencies will continue the collaboration and data analysis throughout the second project year, working to provide recommendations for programs, services, policy, or other strategies to implement identified best practices, efficiencies, pricing and contracting efficiencies and strategies. Included in the strategic discussions shall be recommendations and evaluations on potential value-based payment strategies, inclusive of opportunities for episode-based bundling and pay for quality initiatives to maximize quality and control cost.

Beyond that, the work has the potential to drive meaningful improvements in health care outcomes, costs, and delivery models. It can be used to select and prioritize value-based payment strategies based on predictive analytics. It can track the outcomes of these strategies across applicable sectors. The robustness and detail captured offers the opportunity to continuously drive improvement by identifying the critical factors within a strategy or program that have the greatest impact. In short, it creates a platform for data-driven decision making that is more powerful when shared and used in collaboration across agencies.

7. List of Acronyms

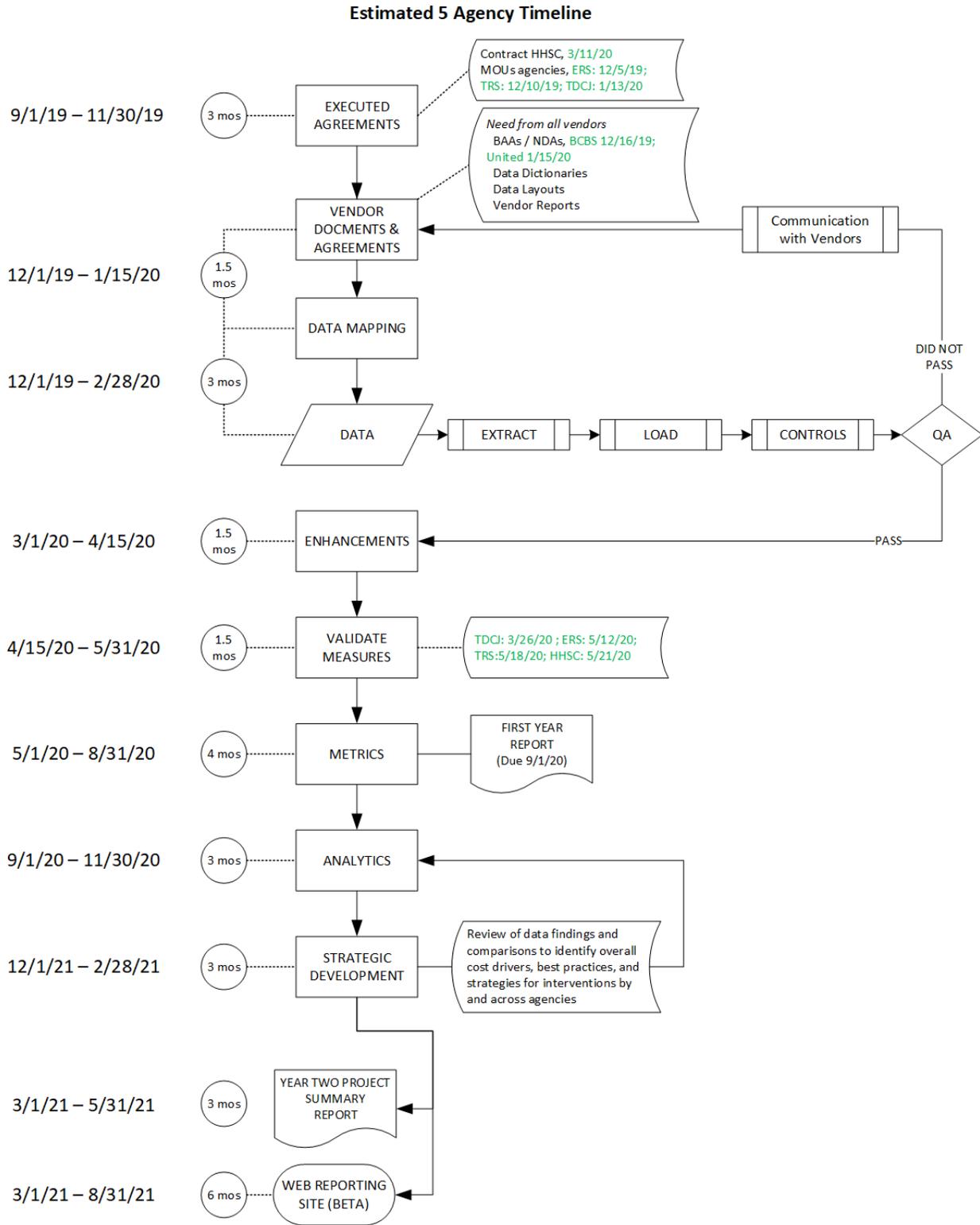
Acronym	Full Name
AHRQ	Agency for Healthcare Research and Quality
APR	All Patient Refined
BAA	Business Associate Agreement
CABG	Coronary Artery Bypass Grafting
CDC	Centers for Disease Control
CHIP	Children’s Health Insurance Program
COBRA	Consolidated Omnibus Budget Reconciliation Act
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	Coronavirus Disease 2019
CRG	Clinical Risk Group
C-Section	Cesarean Section
DRGs	Diagnostic Related Groups
DSH	Disproportionate Share Hospital
DSHS	Department of State Health Services
DSRIP	Delivery System Reform Incentive Payments

Acronym	Full Name
DUA	Data Use Agreement
Duals	Individuals who are Medicaid and Medicare eligible
ERS	Employees Retirement System
FFS	Fee for Service
HB	House Bill
HCC	High Cost Claimant
HealthSelect	HealthSelect of Texas®
HEDIS	Healthcare Effectiveness Data and Information Set
HHSC	Health and Human Services Commission
HIPAA	Health Insurance Portability and Accountability Act
HTW	Healthy Texas Women
ICC	Interagency Cooperative Contract
IQIs	Inpatient Quality Indicators
LTSS	Long-Term Services and Support
MCO	Managed Care Organization
MDC	Major Diagnostic Categories
MOU	Memorandum of Understanding

Acronym	Full Name
MRI	Magnetic Resonance Imaging
MS	Medicare Severity
NICU	Neonatal Intensive Care Unit
NQF	National Quality Forum
PDI's	Pediatric Quality Indicators
Pearl®	Electronic health records documentation used by TDCJ
PHI	Protected Health Information
PMPY	Per Member Per Year
POPY	Per Offender Per Year
PPE	Potentially Preventable Events
PQIs	Prevention Quality Indicators
PSIs	Patient Safety Indicators
RX	Pharmacy
SB	Senate Bill
SFTP	Secure File Transfer Protocol
SOW	Scope of Work
TDCJ	Texas Department of Criminal Justice

Acronym	Full Name
THCIC	Texas Health Care Information Collection program
TRS	Teacher Retirement System
TTUHSC	Texas Tech University Health Sciences Center
UC	Uncompensated Care
UTHealth	The University of Texas Health Science Center at Houston
UTHealth Data Center	The University of Texas Health Science Center at Houston Center for Health Care Data
UTMB	The University of Texas Medical Branch
VBP	Value-Based Payment

Appendix A. Estimated Project Timeline



Appendix B. Data Analysis Plan



**The University of Texas
Health Science Center at Houston**

School of Public Health

Center for Health Care Data

DATA ANALYSIS PROCESS

*A description of the process for claims and encounters
data analysis in health plan assessment*

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Background

Sponsors of health plans aim to provide benefits to covered members to maintain and improve their health status in the most effective and efficient manner. Effectiveness in health plans relates to ensuring appropriate and timely services and quality outcomes from those services. Efficiency comes from managing the payment of services and plan administration. Value is the crossroads of effectiveness and efficiency: providing maximum quality at the lowest payment.

To meet these objectives, plan administrators and sponsors find value in comprehensive data analysis of health plan payments, utilizations, and trends to best understand how the needs of the population covered affect payments. The most resourceful means to uncover this knowledge is to analyze claims and encounters history, which provides a spotlight on health conditions, patterns of utilization and payment of services.

There are many drivers to an increasing trend in the payment of a health benefit plan. General inflation is one possibility which would affect the plan as well as be reflected in expected rates as seen among like organizations. Also, it is possible that the payment of treatments, technologies, supplies and services have risen. Perhaps there are changes in the population covered, such as an increase in an aging population, increases in family ratios, an increase in COBRA members, or in high cost claimants (HCCs). Changes in benefit design or required benefits may also impact payment and utilization. Prescriptive analytics of claims and encounters allows payers to understand the driving trends and provides key information for actuaries and plan administrators to model predictions of future expenditures. These logical predictions also help to identify future needs and structure the plan design to meet those needs. Innovative strategies in payment methodologies and contracting for services can be better targeted with factual understanding of the population health needs and payment projections. Once trends have been identified, analysts and plans are able to take targeted looks at data to explore assumptions and garner further insights.

The Center for Health Care Data provides employer sponsored health plans and other health benefit plans a service with the objective to evaluate health claims and encounters to assess the following:

- Key drivers of payments
- Analysis of payment trends
- Health of the population
- Quality metrics
- Comparison of plan experience to expected rates
- Vendor services
- Return on investment of plan strategies
- Opportunities for plan design, interventions, member services, value-based contracting and other plan strategies to address the needs of the population and to manage payments

Schema of Overall Process of Data Analysis

The following diagram is a schema of the process of claims and encounters data analysis to assess population health, utilization, and drivers of payment. These steps will be discussed in greater detail in this document.



Data Extraction, Transformation and Loading

Data Extraction, Transformation and Loading (ETL) is the process by which data from multiple sources are acquired, extracted into a readable format, transformed and loaded into an aggregated data warehouse. The transformation process allows analysts to convert the data into a normalized and consistent format with standardized variables and values. The loading process places the transformed data into a target destination where the aggregated data can be represented as a whole.

Data Extraction

Before the data analysis process can begin, the data must be extracted from many and diverse sources. Claims and encounters data can be obtained from carriers or other vendors, consultants, plan administrators or elsewhere. The format is very often different depending on the source. Data are transferred to The Center for Health Care Data – CHCD via secure ftp sites after appropriate agreements and other legal documents are completed.

Data Transformation

Data transformation is the process of converting data from diverse sources with different variables or values into a common format or structure. It is a fundamental element to ensure data integration into a common data warehouse and analytical application. In this process the data variables and data values are mapped from the source to a standard data structure and convert the file to comply. This process allows us to incorporate and aggregate administrative data from multiple sources into a common structure and data warehouse.

Data Loading

Once all data files are normalized through the data transformation process, they can be loaded into the custom data warehouse structure, where they are aggregated. The original files are

never altered, the data loading process copies transformed files from the source file to a development storage site, where the next step occurs.

Data Integration:

The data integration process occurs as data are loaded into the warehouse. The process of integrating different kinds of data from a variety of sources requires some key steps. To avoid any possible duplication of sequencing series by different sources, a unique identification number is assigned to each individual represented in the data, thus removing any protected identifiers such as social security number or name. Unique claim IDs are also assigned to avoid the possible duplication of a claim number from different sources. The data are converted to a standardize format as for example in the display of a negative amount and date and time. Additional steps are conducted based on the data format, all of which are designed to provide users with a unified and common view of the data.

Quality Checks:

Once the data are extracted, transformed and loaded, critical quality checks are performed to ensure data completeness, data integrity, and data validity. Data completeness checks ensure that all data that were transferred were received. This is done through comparing the loaded data counts to the control reports sent by the data source.

Data integrity is a process that checks the accuracy and consistency of data to ensure that the correct data are placed in the appropriate fields and that they meet the expected format and are reliable. For example, a common check is that values in the CPT procedure field have 5 digits. If it is discovered that some values have 7 digits, it is possible that modifiers are appended. A series of logical data integrity checks are applied.

Data validation is a process that tests and evaluates the data to assess accuracy and reliability. For example, the total allowed amount per month derived from the data residing in the data warehouse will be compared with carrier reports and control reports to ensure a reasonable match. Another example would be a computation of the average claim count per person to ensure that it is within a range that is believable and reasonable compared to expectations and benchmarks.

If any issues are identified related to data quality, data integrity or data validation, the analysts will work with the data sources to identify and possibly explain the issue or request a correction of the data and a data refresh. The process of data quality checks will repeat with a data refresh. The feedback loop will continue until the data is deemed to be of sufficient quality to proceed with analyses.

Data Enhancement

Before analyses can begin, the data go through a complicated enhancement process. At this stage, some functions are performed that make the data more conducive to interpretation. For example, additional software is applied to create additional fields that convert codes to text, such as diagnoses codes to text descriptions. Group diagnostic categories in hierarchical categories and Major Diagnostic Categories -MDC categories are added. Groupers are applied to procedures as well and also to prescription drugs to identify therapeutic categories. Consistent Diagnostic Related Groups - DRGs in both All Patient Refined - APR DRGs and Medicare Severity - MS DRGs are compiled. The 3M© PPE software is applied to identify potentially preventable events. Through the creation of a monthly enrollment file, a single age is assigned per person per year and a link to family members on a time relevant basis.

Importantly, an elaborate process to link claims and encounters in order to accommodate for claims and encounters submitted more than once or adjusted during the adjudication process is

conducted. Events are created, such as Inpatient Event, where all claims and encounters related to that event are assigned a common and unique admission number, allowing a full view of all combined services during the hospitalization. In addition, “episodes” are created that link claims and encounters to a common episode of care across time.

Pre-identified markers for common or select disease states and conditions are developed using validated and commonly accepted methodology. This allows for identification, for example, all persons with diabetes from the time of initial diagnosis to facilitate key analyses related to diseases. Finally, an individual retrospective (or concurrent) risk value is assigned to each person in the database, based on their claims and encounters history and utilization.

Expected Rates

In addition to these enhancements to the aggregated plan data, there is an ongoing process to conduct continuous updates and refreshes to a maintained data set that provides expected rates for key metrics. Expected rates are useful comparisons of like populations that can be weighted and adjusted to fit the profile of the population being analyzed in order to display a rate that would be “expected” given comparable populations. An expected rate is similar to a benchmark, except that a benchmark is used to mark a desired point of attainment, and an expected rate is a point of measurement of common performance.

The expected rate considers the demographics and risk of the population and adjusts the observed rate of other plans to reflect the population under study. For example, the expected rate of emergency room visits per 1000 may be somewhat higher for a population where the average age is 49 compared to an industry where the average age is 41. Thus, a comparison rate for appropriate metrics is computed that indicates the level which we would expect to see the plan report.

Once these enhancements are completed, the data are loaded to the production site where the analysis can begin.

Population Demographics

Data review begins with analysis on the population demographics. Members are stratified by age, gender, age+gender, plan type, region, business line, active vs retired, employee/subscriber and family/dependents, business unit or other groupings as appropriate. By these stratifications compile counts of unique persons are compiled as well as member month counts and member year counts. Member month and member year counts are generally used in common key metrics as they reflect the transitory pattern of employee/member enrollment in the plan. These age and gender distinctions are used to make adjustments in the expected rates.

Risk Analysis

The application of the Clinical Risk Groups CRG risk values to each individual member allows for specific analysis of segments based on risk level. In relation to trend analysis the risk assessments can be used to predict future payments and utilization

Payment Trends

Payment of health care is assessed on an annual basis and reviewed for trend across years. An initial payment assessment looks at payments by individual demographic characteristics (as suggested above) compared to expected rates. If a segment of the population varies greatly from the expected rate or demonstrates an unexpected trend, further analysis will focus on that group.

Additionally, special focus will be given to individuals considered HCCs, defined here as claims and encounters with annual medical and pharmacy expenses in excess of \$150,000. Particular

focus will be given to the conditions responsible for the high payments and patterns of utilization of resources.

When an anomaly is identified through initial payment review, attention and further analysis of that population group follows to target the main payment drivers.

Prevalence Rates

Diagnoses codes are utilized to categorize key health conditions and disease states which are then used to develop prevalence and incidence rates. It is commonly stated that 5% of the population account for 50% of health care payments incurred, and that overall, persons with chronic conditions account for 75% of all health care spending. Therefore, it is important to assess population health status, as stratified by demographics. Unusual and unexpected rates will prompt further investigation.

Additionally, comparing prevalence and incidence rates of certain conditions among health plan enrollees with estimates from combined data sets will allow for identifying unusual and unexpected rates that will prompt further investigation. Payments associated with key conditions are also analyzed, as well as related utilization rates.

Specifically, prevalence or incidence rates are reported by stratified group; per member per year total payments are also reported. Common diseases and health conditions evaluated include, but are not limited to, the following:

Prevalence Rates for chronic conditions:

- Heart disease
- Cerebrovascular disease
- Diabetes
- Diabetes complications
- Hypertension

- Hyperlipidemia
- Arthritis
- Musculoskeletal
- COPD & Allied Conditions
- Asthma
- Bronchitis & chronic bronchitis
- Emphysema
- Serious mental health conditions

Incidence rates for non-chronic conditions:

- Immunization rates
- Cancer:
 - Breast cancer
 - Colon cancer
 - Lung cancer
 - Prostate cancer
 - Skin cancer
- Depression
- Reproductive health/Pregnancy
- Low birth weight newborns

As noted previously, when an anomaly is identified through condition review, attention and further analysis of that population group follows to target the main payment drivers and opportunities for action.

Utilization of Resources

Rates of utilization by setting is an important key metric to identify trends and payment drivers. Specifically, rates of emergency department visits, acute inpatient admissions, and use of specialists can spotlight opportunities for action and payment reduction. These metrics can be reported by population segments or health conditions. Rates are generally reported on a rate per 1000 population, and will be shown compared with the expected rate, which is adjusted for demographics and risk.

Some of the resources and settings reviewed include, but are not limited to, the following:

- Acute inpatient hospitalizations

Rehabilitation hospitalizations
 Psychiatric hospitalizations
 Substance abuse hospitalizations
 Skilled nursing facility
 Emergency room
 Observation stays
 Freestanding emergency room and urgent care

Acute Inpatient hospitalization days
 Rehabilitation days
 Psychiatric days

Professional and physician visits
 Pharmacy use
 Physical Therapy

Utilization of Preventive Services

Preventive services are included within health benefit plans and are highly encouraged as means for screenings and early identification of conditions. The rate of utilization of age and gender appropriate preventive services are reported for, but not limited to, the following:

Physical exam (annual, including blood pressure)
 Colorectal cancer (CRC) screening
 Breast cancer screening
 Cervical cancer screening
 Immunizations (influenza, pneumonia)
 Smoking cessation
 Weight counseling

Pharmacy Utilization

Pharmacy utilization is reviewed by assessing medication usage and payments by therapeutic categories and classes of medications including, but not limited to, the following with special interest in the following and their relationship to other key measures:

Antidepressants

Anti-Anxiety
 Psychotic and Bipolar Disorders
 Cancer drugs (chemotherapy)
 Tobacco Cessation (prescribed)
 Weight Loss (prescribed)
 Antibiotics

Additionally, the use and payment trend of specialty drugs will be reviewed with attention to member co-pay. If indicated, maintenance medication adherence for chronic disease states can be assessed to inform disease management strategies.

HEDIS® and NQF Measures

The Healthcare Effectiveness Data and Information Set (HEDIS) is a set of performance measures used to report on quality in the managed care industry. HEDIS, along with the National Quality Forum (NQF) endorse measures for use with administrative claims and encounters data to report on quality metrics, frequency of selected procedures, and other key metrics.

Selected measures will be computed and reported as indicated. Variations noted when comparing these results with expected rates can identify possible opportunities to designate centers or providers of excellence for value-based contracting opportunities.

AHRQ Quality Indicators Measures

Prevention Quality Indicators (PQIs): Agency for Healthcare Research and Quality (AHRQ) identify ambulatory care sensitive conditions, defined as 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;

Inpatient Quality Indicators (IQIs): These indicators reflect quality of care inside hospitals and include inpatient mortality; utilization of procedures for which there are questions of overuse, underuse, or misuse; and volume of procedures for which there is evidence that a higher volume of procedures is associated with lower mortality;

Patient Safety Indicators (PSIs): These indicators focus on potentially preventable instances of complications and other iatrogenic events resulting from exposure to the healthcare System

Pediatric Quality Indicators (PDIs): These indicators reflect the quality of care for children younger than 17 years of age and neonates inside hospitals (provider-level indicators) and identify potentially avoidable hospitalizations among children (area-level indicators).

Specific Procedures or Events

An analysis of specific procedures or health events may also be conducted to identify unexpected rates, trends, payments or inappropriate utilization. Some examples include, but are not limited to, the following:

- C Section: rates and outcomes
- Pregnancy outcomes
- NICU admission rate
- Cancer Treatment and Providers, centers of excellence
- Hip replacement
- Knee replacement
- MRI
- CABG
- Cardiac catheterization
- Back surgeries
- Overuse of antibiotics

Appropriateness

Other financial metrics include checks on provider network adequacy and assessment of out-of-network utilization. An evaluation of “surprise billing” from non-network providers seen in the ER or for anesthesia can be conducted to assess the impact to members. Overpayment analysis can include a check on payments made on claims and encounters in excess of billed charges.

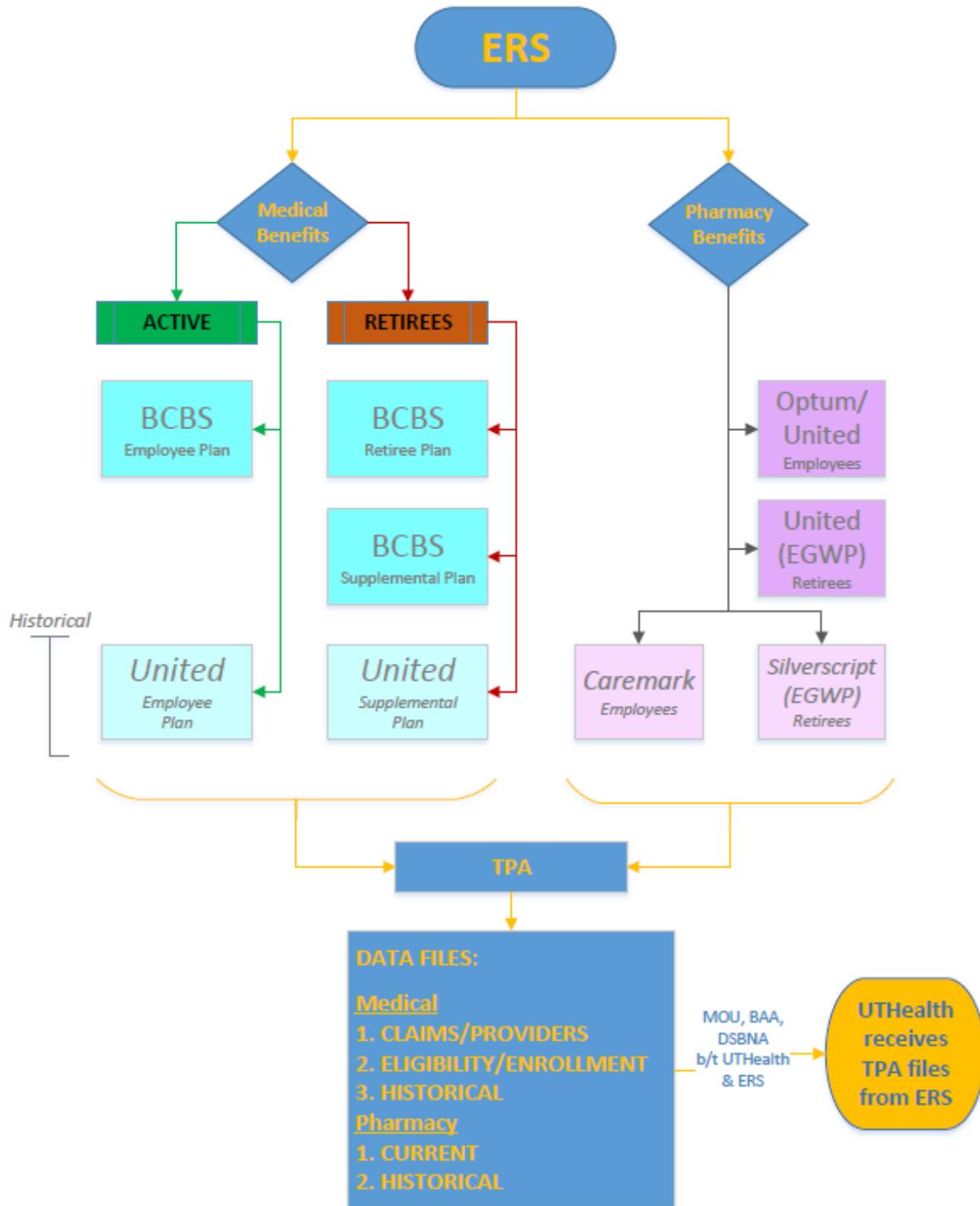
Summary

The comprehensive data integration and analysis process applies algorithms that allow for the analysis of thousands of health care data elements. This leads to the identification of trends, payment drivers, treatment and utilization patterns and population health issues for the specific plan, and specific segments. The incorporation of expected rates allows the analyst to compare and identify areas to target additional analysis and possible insights on intervention strategies for action.

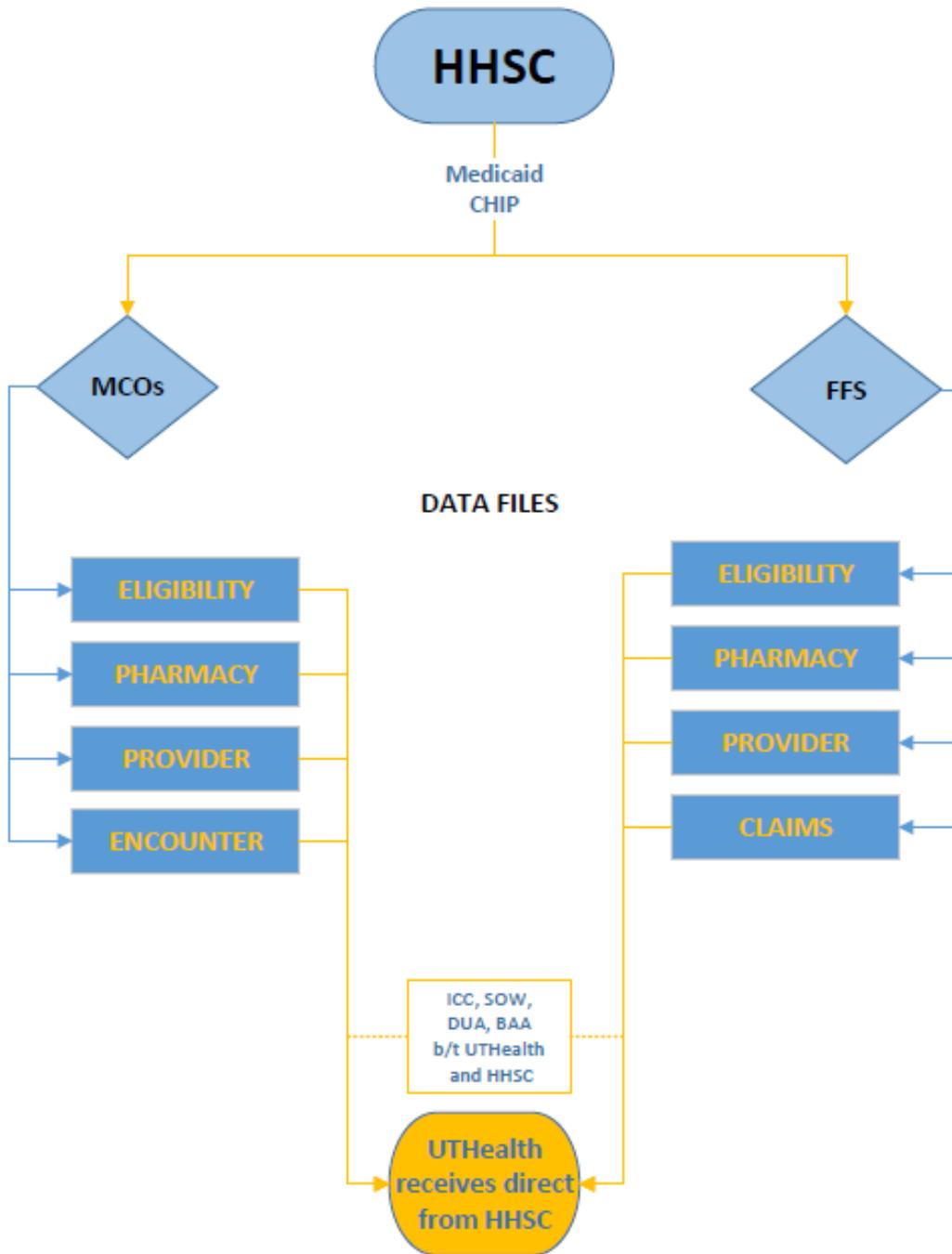
Analytical results will ultimately be displayed on a secure web-based platform to allow the user to explore the pre-curated results. The site will also allow for interactive queries by authorized client users to examine the data and allow for self-service reporting.

Appendix C. Agency Data Resources

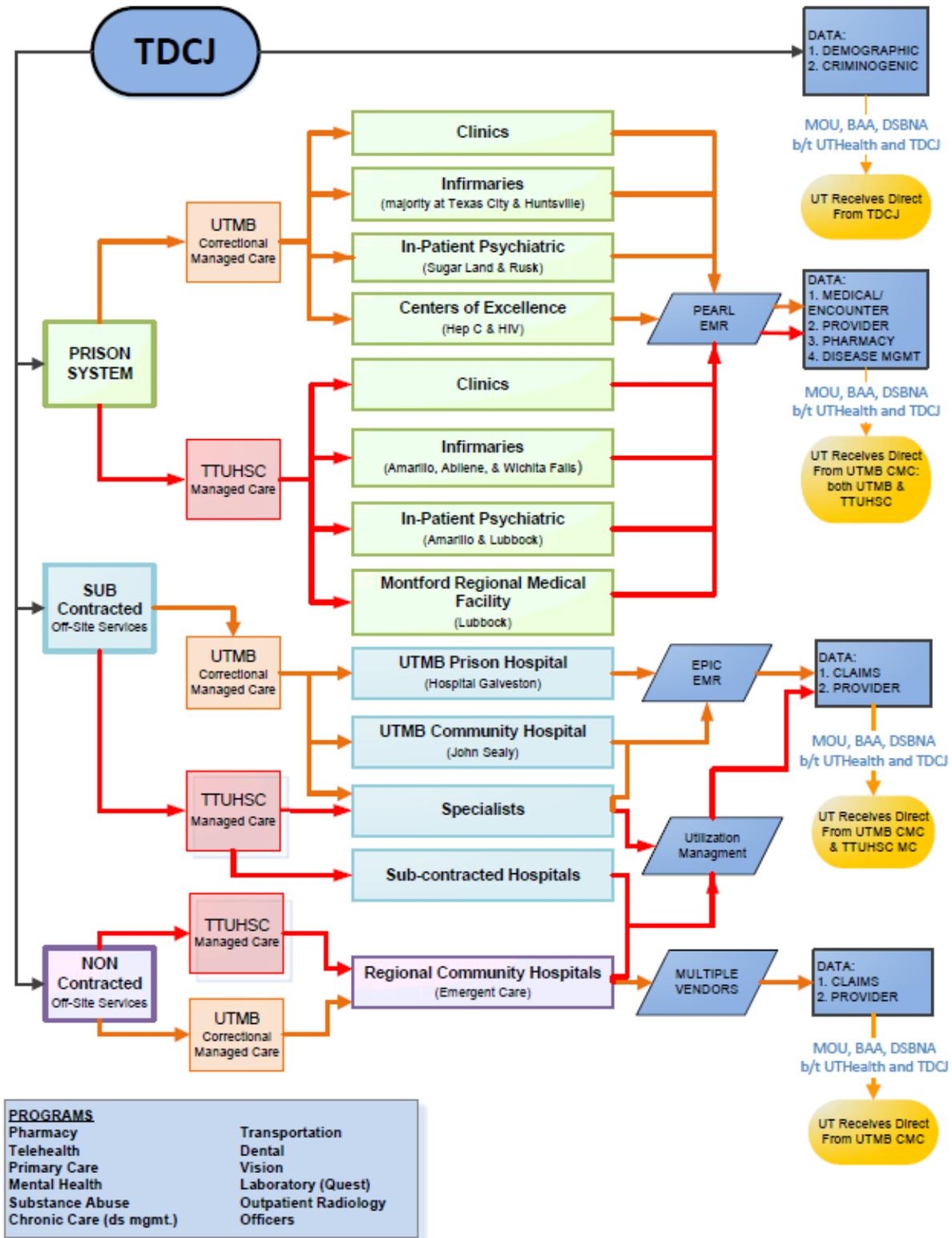
ERS Data Resources



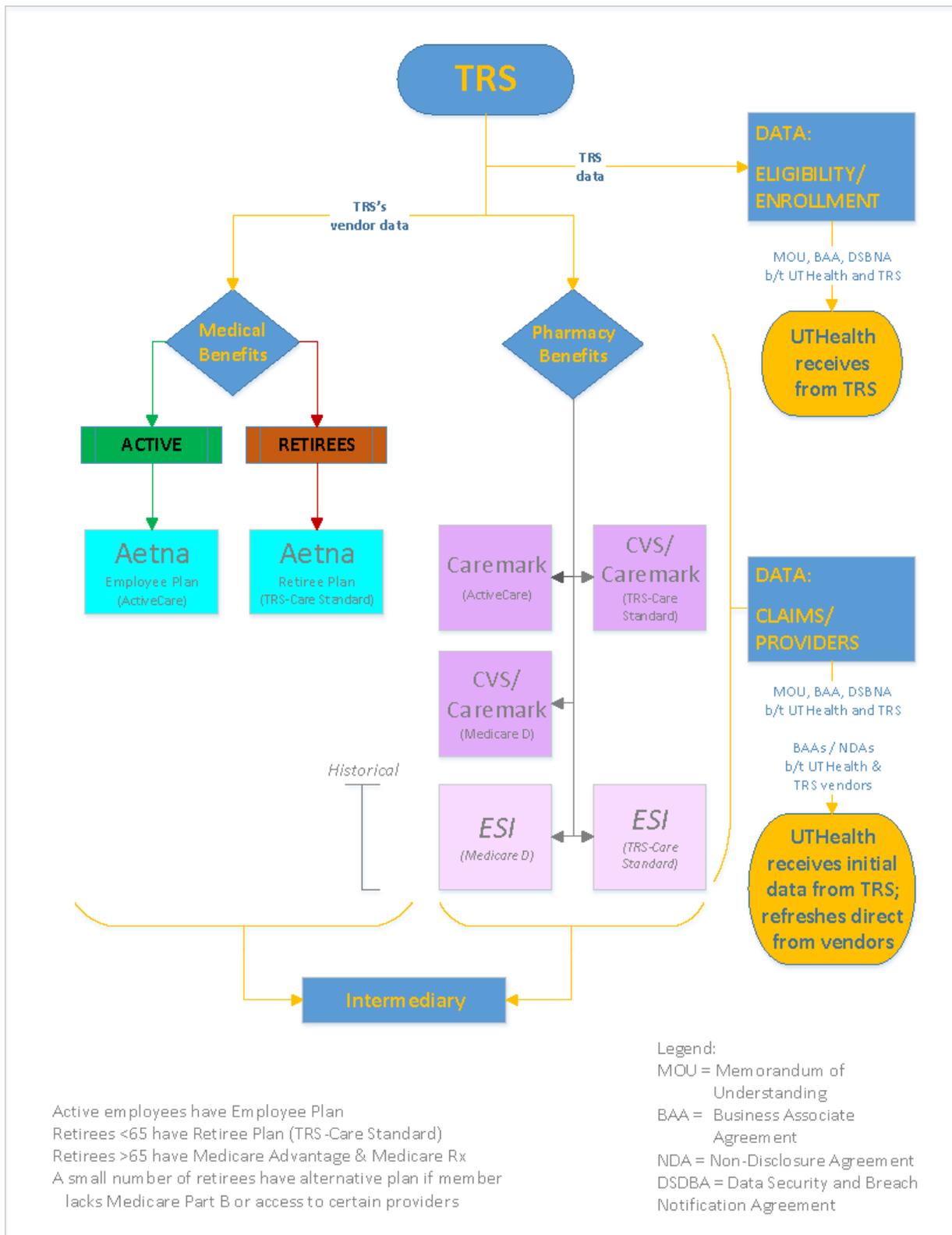
HHSC Data Resources



TDCJ Data Resources



TRS Data Resources



Appendix D. Scope of Work



Attachment A. Scope of Work

THE HEALTH AND HUMAN SERVICES COMMISSION (“Receiving Agency” or the “System Agency”) and **THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON**, State Agency Number 744 (“UTHSCHOU”, UTHealth” or the “Performing Agency”) on behalf of its School of Public Health’s Center for Health Care Data (“CHCD”), must fulfill the roles and responsibilities set forth below regarding services related to the Cross-Agency Coordination on Healthcare Strategies and Measures. UTHealth CHCD will hereafter be referred to as “UTHealth Data Center” or “Data Center”.

I. Project Description

During the 2019 Texas Legislature, a directive in the form of a bill rider to the 2020-21 General Appropriations Act was issued to evaluate the provision of healthcare benefits offered by keystate agencies that pay for healthcare of persons in Texas. Five key agencies were identified as providers of healthcare benefits contributing to these expenses: the Department of State Health Services (DSHS), the Employees Retirement System of Texas (ERS) – active and retired state and certain higher education employees and their dependents, the Department of Health and Human Services (HHSC) – Medicaid and CHIP, the Texas Department of Criminal Justice (TDCJ) – incarcerated persons in the State prison system, and the Teacher Retirement System (TRS) – active and retired school and higher education employees and their dependents.

The rider (Sec 10.06) directive is as follows:

Sec. 10.06. Cross-Agency Coordination on Healthcare Strategies and Measures.

(a) Out of funds appropriated elsewhere in this Act, the Health and Human Services Commission shall coordinate with the Department of State Health Services, the Employees Retirement System of Texas, the Texas Department of Criminal Justice, and the Teacher Retirement System to compare healthcare data, including outcome measures, to identify outliers and improvements for efficiency and quality that can be implemented within each healthcare system. To administer the data comparison, HHSC shall expend \$2.5 million per year with the Center for Health Care Data at the University of Texas Health Science Center at Houston (UTHealth Data Center) for data analysis, including individual benchmark and progress data for each agency. As applicable, agencies shall collaborate on the development and implementation of potential value-based payment strategies, including opportunities for episode-based bundling and pay for quality initiatives.

(b) The agencies shall meet quarterly to carry out coordination activities as described above.

(c) The agencies shall submit a report to the Legislative Budget Board and the Governor no later than September 1, 2020 describing coordination activities, efficiencies identified, individual agency policies and practices that have been improved due to the application of the data, and recommendations on future ways to reduce cost and improve quality of care in each healthcare system.

II. Project Background

The State of Texas has identified the rising cost of healthcare as a key issue affecting state finances. Senate Bill (SB) 1, Article IX, Section 10.06, 85th Legislature, Regular Session, 2017 (Rider 10.06) required HHSC to coordinate with DSHS, ERS, TDCJ, and TRS to develop recommendations and a comprehensive plan for an integrated healthcare information system that can be used to compare data related to the healthcare systems funded by appropriations made to these agencies. The five agencies formed the Five Agency Workgroup (Workgroup) that met frequently to collaborate and explore opportunities for building an integrated healthcare information system to compare utilization, costs, reimbursement rates, and quality in each healthcare program. Experts from UTHealth Data Center consulted with the Workgroup, completed a pilot assessment of HealthSelectSM of Texas (HealthSelect) claims data with ERS at no cost, and provided expertise on data collection and analysis for the recommendations to the Legislature.

The 85th Texas Legislature, 2017, also approved a companion rider – SB 1, Article IX, Section 10.07, requiring HHSC, ERS, and TRS (agencies with a large proportion of healthcare expenditures) to share information and collaborate, where possible, on approaches to improve value in their systems.

The five agencies named in Rider 10.06 submitted a report to the Legislative Budget Board and the Governor on May 1, 2018, describing similarities and differences among the programs, cost drivers and cost containment initiatives, options for meeting the goals of the rider, and lessons learned including the need to adjust for demographic and health acuity differences among populations for making valid comparisons among programs. The Workgroup reported meaningful data comparisons were achieved in the pilot with UTHealth Data Center and that the experience and expertise in using healthcare claims and electronic medical record data to produce analyses that impact treatment, policy, and payment systems make them a good partner for future work. As a result of the May 1, 2018 report, House Bill (HB) 1, Article IX, Section 10.06 (entitled “Cross-Agency Coordination on Healthcare Strategies and Measures”) of the General Appropriations Act was enacted by the Texas Legislature during its 86th Session in 2019, which included a funding directive for this project and appointed UTHealth Data Center to perform the data collection and analyses.

The Workgroup, expanded to include UTHealth Data Center and other members of the five agencies, met in July 2019 in preparation of the next phase of the project. UTHealth has been working with HHSC to amend an existing Interagency Cooperation Contract (ICC) as well as with each individual agency to update or initiate Memorandums of Understanding (MOUs) for data analysis.

III. UTHealth Data Center Background

UTHealth Data Center aggregates claims data and provides comprehensive data analysis to evaluate cost, quality, utilization and policy impact on healthcare in Texas. Data Center has developed an expertise in the use of healthcare claims data and electronic medical record data for analyses that impact treatment, policy, and payment systems. Data Center has demonstrated excellence in the analysis of electronic medical records (EMR) and claims data as well as the extraction, translation, and enhancement of diverse data sets into a cross-analytical data collection for analysis and comparisons. With vast historical data, UTHealth Data Center has developed reliable expected rates, or benchmarks, that are useful in plan analyses.

Data Center has received certification from the Centers for Medicare and Medicaid Services (CMS) as a Qualified Entity (QE), which designates it as one of only a few data centers in the nation that meet the rigorous requirements of CMS for data analysis and data protection.

UTHealth Data Center is affiliated with the Texas Advanced Computing Center (TACC) which operates some of the world's most powerful computing resources and advanced computing technologies. Data are securely stored and processed through TACC. TACC's environment includes a comprehensive cyberinfrastructure ecosystem of leading-edge resources in high performance computing (HPC), visualization, data analysis, storage, archive, cloud, data-driven computing, connectivity, tools, application programming interfaces (APIs), algorithms, consulting, and software. Since 2015, TACC has provided Health Insurance Portability and Accountability Act (HIPAA) compliant computing and data systems for all University of Texas System medical researchers and their collaborators. In addition, TACC is authorized to work with Federal Information Security Management Act (FISMA) data.

IV. Scope of Work Statement

UTHealth will enter into agreements with the five named agencies of the State of Texas (DSHS, ERS, HHSC, TDCJ, and TRS) for data analysis to facilitate a comparison of healthcare data within each agency and across all agencies to assess population health, utilization of healthcare services, costs of healthcare benefits and delivery, and to identify areas for improving quality and efficiency.

The initial project runs from 9/1 /2019 to 8/31 /2021 and shall follow the directive from the rider to do the following:

- Develop a comprehensive structure for an integrated healthcare information system that will be used to compare data related to the healthcare systems funded by appropriations made to these agencies;
- Extract data from agencies and agency vendors, translate such data to standardized variables and values within the data warehouse, and load data into the integrated healthcare information system;
- Analyze and compare healthcare data, including outcome measures, to identify outliers and improvements for efficiency and quality that can be implemented within each healthcare system; and
- Provide reporting on data analysis, including baseline, trend and progress analysis, and individual benchmark data for each agency (where available).

Should the contract be continued in future years, future steps will include the following:

- Continuing and updated trend analysis;
- Recommendations for programs, services, policy, or other strategies to implement identified best practices, efficiencies, pricing and contracting efficiencies and strategies;
- Recommendations and evaluations on value-based strategies to maximize quality and control cost; and
- Analysis of effectiveness of implemented strategies across years.

A. Phase One: Project Implementation: Estimated Time: September 2019 – February 2020

The initial stage of the project is primarily administrative. The following tasks must be accomplished during this time frame:

1. Interagency Cooperation Contract (ICC) between UTHealth and HHSC
2. Memorandums of Understanding for Data Use (MOUs) and related Business Associate Agreements (BAAs) and Data Security and Breach Notification Agreements (DSBNAs) between UTHealth and each other agency (DSHS, ERS, TDCJ, and TRS)
3. Vendor contacts, BAAs and Non-Disclosure Agreements (NDAs)
4. Data Dictionaries and Layouts
5. Data Warehouse
6. Receive Data
7. Extraction, translation and loading of data

8. Assess Data Quality and Completeness

Deliverables:

UTHealth Data Center shall submit written monthly project status reports to HHSC describing the activities to date of the Data Center and the agencies, including action items completed during the previous month and action items currently in progress.

UTHealth Data Center will prepare, deliver and present a summary report on the activities in Phase One to the Workgroup in January 2020. Please note: the dates of all future phases are contingent on successful completion of Phase One data collection and quality check.

B. Phase Two: Initial Data Analysis: Estimated Time: March 2020 – May 2020

UTHealth Data Center will conduct the initial data analysis to include:

- Population health status
- Comparison of populations with age and risk adjustment when appropriate
- Consideration of Plan Design and Operation
- Overall costs comparison
- Review of value-based strategies
- Key quality metrics
- Key utilization metrics
- Review and analysis of identified variations from expected rates
- Other analyses as identified

Deliverables:

UTHealth Data Center shall submit written monthly project status reports to HHSC describing the activities to date of the Data Center and the agencies, including action items completed during the previous month and action items currently in progress.

UTHealth Data Center shall submit and present a summary report to the Workgroup no later than June 2020 describing the coordination activities to date, the activities of the Data Center related to data collection and analysis, and a discussion of the key differences among the agencies. Some findings of the initial data analysis, including an initial comparison of data across agencies, shall be included provided the Phase One timeline is met.

The report shall provide information for the Workgroup that will be useful for an initial report to the Legislative Budget Board and the Governor, which is due no later than September 1, 2020. This first report will describe coordination activities in fiscal year 2019/2020 and consist of a final report template describing how the data and finding will be presented in the final report.

C. Phase Three: Data Analysis for Quality Assessments: Estimated Time: June 2020 – February 2021

Based on input provided by the Five Agencies Workgroup, UTHealth Data Center shall explore the data from the five agencies to analyze and compare the provision of healthcare benefits within and across agencies. Analyses may include:

1. Utilize the data to define the health of the distinct populations;
2. Utilize the claims and EMR data to compare cost, reimbursement rates, utilization, risk, and quality related to these agencies' healthcare systems to assess for common issues across agencies as well as agency-specific issues;
 - a. Evaluate each agency's data for: prevalence rates of specific health conditions, incidence rates of specific procedures or events, cost of services, cost of member groups, specific quality measures, and other key metrics used in the identification and analysis of the health of the population, the quality of services, and drivers of cost; and
 - b. Evaluate cost, quality and performance measures compared with expected rates for specific population groups for the purpose of identifying significant variances to highlighting areas for potential efficiency and/or quality improvements;
3. Apply risk adjustment tools to normalize the data of diverse population groups to assist in appropriate comparisons across agencies;
4. Compute select quality measures for comparison across agencies using either Healthcare Effectiveness Data and Information Set (HEDIS) or National Quality Forum (NQF) approved measures and technical specifications;
5. Apply the 3M Core Group software to identify potentially preventable events within the claims experience of each agency;
6. Use select Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QIs). AHRQ QIs are standardized evidenced-based measures of healthcare quality.
 - a. Prevention Quality Indicators (PQIs): These indicators identify ambulatory care sensitive conditions, defined as 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;

- b. Inpatient Quality Indicators (IQIs): These indicators reflect quality of care inside hospitals and include inpatient mortality, utilization of procedures for which there are questions of overuse, underuse, or misuse; and volume of procedures for which there is evidence that a higher volume of procedures is associated with lower mortality,
 - c. Patient Safety Indicators (PSIs): These indicators focus on potentially preventable instances of complications and other iatrogenic events resulting from exposure to the healthcare system; and
 - d. Pediatric Quality Indicators (PDIs): These indicators reflect the quality of care for children younger than 17 years of age and neonates inside hospitals (provider-level indicators) and identify potentially avoidable hospitalizations among children (area-level indicators); and
5. Other relevant metrics or analyses, either at a population or subpopulation level, as determined by the Workgroup.

Deliverables:

UTHealth Data Center shall submit written monthly project status reports to HHSC describing the activities to date of the Data Center and the agencies, including action items completed during the previous month and action items currently in progress.

UTHealth Data Center shall develop and implement a web-based reporting structure and user interface for stakeholders to access information, analyses and reports by agency and across agencies for state-level analyses using data provided for this project. Specific reporting tools are defined below. This reporting structure shall be accessible only to authorized users, shall be de-identified as required by HIPAA, and shall contain only aggregated population-based reporting with no individual health data or identifiers. The Beta version shall be operational no later than July 2021.

When complete, the web-based reporting tool will produce:

1. A report of findings for each agency that provides agency-specific information to include: prevalence rates of specific health conditions, incidence rates of specific procedures or events, cost of related services, cost of affected member groups, specific related quality measures, and other key metrics used in the identification and analysis of the health of their population, quality of services, and drivers of cost. This report will provide information that can be used to identify effective strategies or best practices that might be implemented across the agencies.

2. A report of findings that provides information across all participating agencies comparing aggregate data on cost, reimbursement rates, utilization, risk, and quality measures. This report will provide information describing variances across agencies and identifying possible opportunities for improvement of efficiency and quality across agencies.

**D. Phase Four: Agency Coordination and Recommendations: Estimated Time:
March 2021 – August 2021**

UTHealth Data Center shall work with the Five Agency Workgroup to provide data-based guidance and suggestions to the agencies to assist with developing recommendations to the Texas State Legislature and a comprehensive plan to address identified issues that considers the differences across agencies in populations, acuity, and other significant factors. Recommendations for future action shall incorporate the use of existing and future health claims data sources with the potential for expansion of existing healthcare data integration initiatives.

Deliverables:

UTHealth Data Center shall submit written monthly project status reports to HHSC describing the activities to date of the Data Center and the agencies, including action items completed during the previous month and action items currently in progress.

UTHealth Data Center shall assist in the development of a report and plan, and shall provide data visualization, background, and recommendations to inform the Workgroup's reporting process. The final project report shall describe coordination activities across two years, efficiencies identified, individual agency policies and practices that could improve due in response to the data findings, and recommendations on future ways to reduce cost and improve quality of care in each healthcare system, with the opportunity for ongoing data submission, concurrent analyses, and trend reporting that could reveal impact of interventions.

The report shall provide information for the Workgroup that would be useful for a final project summary report to the Legislative Budget Board and the Governor.

V. Interagency Cooperation Contract (ICC) and Data Use Agreement (DUA)

UTHealth has an existing Interagency Cooperation Contract (ICC) and Data Use Agreement (DUA) with HHSC (contract number HHS000023000001), which shall serve as a basis for holding and protecting the HHSC data used to fulfill the Section 10.06 Cross-Agency Coordination on Healthcare Strategies and Measures project.

UTHealth and HHSC will execute a new contract to authorize this specific use of the Medicaid data and establish terms for payment of services.

Additionally, UTHealth will execute a MOU with each agency involved in the project regarding the project and the management and protection of data provided to UTHealth Data Center.

Appendix E. Charter

CHARTER
**Cross-Agency Coordination on Healthcare
Strategies and Measures**

House Bill 1, Article IX, Section 10.06
86th Texas Legislature, Regular Session, 2019

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Section 1. Background

1.1 Issue Statement

Since 1991, the year the Texas Legislature established the Health and Human Services Commission (HHSC), healthcare spending nationally has risen from 13 percent of gross domestic product to about 18 percent in 2015.¹ At the same time, more responsibility for paying for healthcare has shifted to government at all levels, including state government. For example, between 1991 and 2015, the portion of all healthcare expenditures borne by the major publicly funded programs of Medicare, Medicaid, and Children's Health Insurance Plan (CHIP) increased from 27 percent to 38 percent.² Overall, these trends in healthcare payments challenge state governments not only in how to fund essential healthcare programs but also in maintaining investments in education, highways, and other critical infrastructure. In Texas, as of 2015, healthcare accounted for over 43% of the state's all funds budget with expenditure growth of nearly 20% since 2011, a rate that far exceeds inflation (5.4%) and the increase in population (7.1%) during the same four-year period.³

The Teacher Retirement System of Texas (TRS) has a long history of delivering health benefits to public education affiliated participants. Since 1986, TRS has provided health coverage to retirees through TRS-Care. Starting in 2003, TRS has also offered coverage to public education employees through TRS-ActiveCare. In fiscal year 2019, TRS provided health coverage to 712,888 people, including 483,113 public education employees and their families and 229,775 retirees and their families. Health benefits offered by TRS are funded by employee and retiree contributions, as well as funding from schools and the legislature. The TRS Board of Trustees makes adjustments to benefits and determines the total cost of premiums. The legislature and school districts determine their contributions to retiree and employee premiums.⁴ The Employees Retirement System of Texas (ERS) manages benefits for employees and retirees of State of Texas agencies and certain higher education institutions including providing health coverage to about one of every 52 Texans.⁵ HHSC, ERS, and TRS, oversee a majority of Texas' public sector expenditures on health services. Together, according to the Texas Comptroller, these

¹ U.S. Centers for Medicare and Medicaid Services, "Table 1 National Health Expenditures: Aggregate and Per Capita Amounts, Annual Percent Change and Percent Distribution: Calendar Years 1960-2015," <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/NHEGDP15.zip> (accessed February 14, 2017).

² Ibid, "National Health Expenditures by Type of Service and Source of Funds: Calendar Years 1960-2015," <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/NHE2015.zip>; "National Health Expenditures; Aggregate and Per Capita Amounts, Annual Percent Change and Percent Distribution: Calendar Years 1960-2015," <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/NHEGDP15.zip>. (accessed February 14, 2017).

³ Texas Comptroller of Public Accounts, "Texas Health Care Spending Report Fiscal 2015," January 2017, p. 1, <https://comptroller.texas.gov/economy/docs/96-1796.pdf>. (accessed May 18, 2017).

⁴ TRS Health Benefits Report 2019, https://www.tr.s.texas.gov/TRS%20Documents/healthcare_health_benefits_report_2019.pdf. (accessed April 14, 2020)

⁵ <https://ers.texas.gov/>. (accessed April 2, 2020)

three agencies account for about 78 percent of the state's healthcare budget and 83 percent of general revenue spending on healthcare.⁶

The Texas Department of Criminal Justice (TDCJ) partners with two organizations, University of Texas Medical Branch (UTMB) Correctional Managed Care (CMC) and Texas Tech University Health Science Center (TTUHSC) Managed Care, to provide health care to offenders throughout the state.

Texas Department of State Health Services (DSHS) was created by House Bill 2292 of the 78th Texas Legislature in 2003 by merging four state agencies: the Texas Department of Health, Texas Department of Mental Health and Mental Retardation, Texas Health Care Information Council, and Texas Commission on Alcohol and Drug Abuse. DSHS provides state-operated health care and other services to promote and protect the health of Texans.

These five state systems face distinct challenges based on whom they serve, how they are funded, and how they deliver care. However, even with these differences, the five agencies manage similar cost drivers⁷ and share the same overarching aims to improve outcomes and health while containing expenditures.

Overall, the aims of these five state institutions are consistent with the goals of The Quadruple Aim initiative:

1. Improving the patient experience of care (including quality and satisfaction);
2. Improving the health of populations;
3. Reducing the per capita cost of health care; and
4. Improving provider worklife.

Through data analyses the workgroup intends to work towards improving the health of the populations served via optimizing the health and experience of state workers and citizens, while reducing the state's overall health care expenditures. This effort is consistent with working towards value in health care, which is maximizing quality while minimizing cost.

1.2 Texas Legislature Directive, 85th Legislature, Regular Session, 2017

Senate Bill (SB) 1, Article IX, Section 10.06, 85th Legislature, Regular Session, 2017 (Rider 10.06) was enacted requiring HHSC to coordinate with DSHS, ERS, TDCJ, and TRS to develop recommendations and a comprehensive plan for an integrated healthcare information system that can be used to compare data related to the healthcare systems funded by appropriations made to these agencies.

To ensure that healthcare initiatives across Texas agencies are appropriately coordinated and reflect the best available evidence and practice, the 85th Texas Legislature, 2017, approved a companion rider SB 1, Article IX, Section 10.07 calling on HHSC, ERS, and TRS (Texas agencies

⁶ Comptroller of Public Accounts, p. 2.

⁷ *Ibid*, p. 36-41.

with large healthcare expenditures) to share information and collaborate, where possible, on approaches to improve value in their systems.⁸ Until it was disbanded in 2011, the Texas Health Care Policy Council provided a similar forum for multi-agency discussion on ideas to improve healthcare quality and efficiency in Texas.⁹

1.2.1 Workgroup (2017)

The five agencies named in Rider 10.06 formed a workgroup that met frequently to collaborate and explore opportunities for building an integrated healthcare information system to compare utilization, costs, reimbursement rates, and quality in each healthcare program. The workgroup consulted with experts from The University of Texas Health Science Center at Houston (UTHealth) Center for Health Care Data (Data Center) to complete a pilot assessment of HealthSelect of Texas[®] (HealthSelect) claims data with ERS.

In addition, a charter was developed to establish a formal collaborative process and set of expectations that guided the state's major healthcare related agencies with the goal of working together to improve publicly funded healthcare services.

1.2.2 Workgroup Outcomes

The workgroup submitted a report to the Legislative Budget Board and the Governor on May 1, 2018, describing similarities and differences among the programs, cost drivers and cost containment initiatives, options for meeting the goals of the rider, and lessons learned including the need to adjust for demographic and health acuity differences among populations for making valid comparisons among programs. The workgroup identified initial focus areas for collaborative value-based and quality improvement initiatives as well as significant value-based opportunities and challenges.

1.3 Texas Legislature Directive, 86th Legislature, Regular Session, 2019

During the 2019 Texas Legislature, a directive in the form of a bill rider to the 2020-21 General Appropriations Act was issued to evaluate the provision of healthcare benefits offered by key state agencies that pay for healthcare of persons in Texas. Effective September 1, 2019, House Bill (HB) 1, Article IX, Section 10.06 (entitled "Cross-Agency Coordination on Healthcare Strategies and Measures") included a funding directive for the project and appointed University of Texas Health Science Center - Center for Health Care Data to perform the data collection and analyses. The rider (Sec. 10.06) directive is as follows:

Sec. 10.06. Cross-Agency Coordination on Healthcare Strategies and Measures.

⁸ The full text of S.P. 10.07 reads: The Health and Human Services Commission, the Employees Retirement System of Texas, and the Teacher Retirement System shall collaborate on the development and implementation of potential value-based payment strategies, including opportunities for episode-based bundling and pay for quality initiatives. To the extent possible, these agencies shall work toward similar outcome measures.

⁹ House Bill 916, 79th Texas Legislature, Regular Session, 2005,
<https://capitol.texas.gov/tlodocs/79R/billtext/pdf/HB00916F.pdf#navpanes=0>

(a) Out of funds appropriated elsewhere in this Act, the Health and Human Services Commission [HHSC] shall coordinate with the Department of State Health Services [DSHS], the Employees Retirement System of Texas [ERS], the Texas Department of Criminal Justice [TDCJ], and the Teacher Retirement System [TRS] to compare healthcare data, including outcome measures, to identify outliers and improvements for efficiency and quality that can be implemented within each healthcare system. To administer the data comparison, HHSC shall expend \$2.5 million per year with the Center for Healthcare Data at the University of Texas Health Science Center at Houston (UT Data Center) for data analysis, including individual benchmark and progress data for each agency. As applicable, agencies shall collaborate on the development and implementation of potential value-based payment strategies, including opportunities for episode-based bundling and pay for quality initiatives.

(b) The agencies shall meet quarterly to carry out coordination activities as described above.

(c) The agencies shall submit a report to the Legislative Budget Board and the Governor no later than September 1, 2020 describing coordination activities, efficiencies identified, individual agency policies and practices that have been improved due to the application of the data, and recommendations on future ways to reduce cost and improve quality of care in each healthcare system.

Section 2. Workgroup Configuration (2019)

2.1 Workgroup Description

As a result of Sec. 10.06 from the 86th Texas Legislature, a new workgroup was formed including participants from the five agencies named in Sec. 10.06 (HHSC, DSHS, ERS, TDCJ, and TRS) and UTHHealth Data Center.

Each participating agency along with the Data Center will name one representative to serve as the primary project contact and also name representatives to serve on the full workgroup and subcommittees.

2.2 Workgroup Goals and Objectives

2.2.1 Goals

To identify cost drivers and/or quality challenges with potential for significant improvement that are specific to participating Texas healthcare related agencies, as well as those that are common across agencies.

To identify outliers and improvements for efficiency and quality that can be implemented within the agencies.

To develop a coordinated value-based and/or quality improvement strategy to address the identified topics.

To develop a comprehensive structure for an integrated healthcare information system that will be used to compare data related to the healthcare systems funded by appropriations made to these agencies;

2.2.2 Objectives

Prioritize areas with highest potential for improvement through cross-agency collaboration on value-based initiatives.

Exchange information on best practices for promoting value in healthcare, including experiences with alternative payment models, performance based contracting, incentive programs, recognition programs, continuous quality improvement approaches, and data analytics and reporting.

Identify opportunities to align around common outcome measures and to streamline other administrative burdens on agencies, health plans, providers, and patients.

2.3 Workgroup Scope

Workgroup Scope Includes
Agenda topics agreed to by consensus of participating agencies
Review of aggregated data and analytic reports
Review of comparative data across agencies for best practices
Coordination of cross agency responses to legislative requests

Workgroup Scope Excludes
Agenda topics that do not reflect a consensus of participating agencies
Review of any analytics or discussions that reveal protected health information

2.4 Workgroup Subcommittees

2.4.1 Strategic Governance

Each agency, along with UTHealth Data Center, will designate at least one member to serve on the Strategic Governance Subcommittee to discuss details of how the workgroup will operate, as well as the strategic goals, mission, and objectives of the project. This subcommittee will also problem solve project issues that arise. Final decisions will reflect consensus by all participating entities, and they will be documented and reported to the workgroup.

2.4.2 Data

Each agency, along with UTHealth Data Center, will designate at least one member to serve on the Data Subcommittee to assist with determining details such as data periods, common issues, metrics, measures, etc. Outcomes and suggestions from the Data Subcommittee will be proposed to the workgroup for discussion and consensus.

2.5 Critical Success Factors

- a) Active participation by quality improvement leaders and subject matter experts from all participating agencies
- b) All participating agencies are represented on workgroup and subcommittees
- c) The availability and good faith sharing among all participating agencies of relevant aggregate data and information on performance and challenges faced by each represented healthcare system
- d) Executive management support

2.6 Workgroup Outcomes

2.6.1 First Year Report

The First Year Report will be a project report to the workgroup that will serve as the basis for the report due to the Legislature on 9/1/20. This report will describe the coordination activities in fiscal year 2019/2020 as well as analytics related to potential benefits across agencies.

2.6.2 Year Two Project Summary Report:

The Year Two Project Summary Report will be a project summary report to the workgroup that describes coordination activities across two years as well as final data findings.

2.6.3 Information to be Reported

UTHealth will serve as the initial HIPAA compliance & de-identification expert for any public reporting of data.

Secondarily, each agency (project leads, subject matter experts, legal, etc.) will review to ensure compliance with specific agency regulations regarding public data reporting.

Aggregated population-based reporting with no individual health data or identifiers.

Information across all participating agencies comparing aggregate data on cost, reimbursement rates, utilization, risk, and quality measures.

Information describing variances across agencies and identifying possible opportunities for improvement of efficiency and quality across agencies.

2.6.4 Information not Reported

Individual health data, identifiable data, and/or protected health information.

Individual agency contracted provider rates.

2.7 Assumptions

Workgroup Assumptions
Subject matter experts see benefits of participating in a formal cross agency project

Workgroup Assumptions
Healthcare related agencies have shared areas of interest for advancing value-based payment and quality improvement
High quality data analytics with appropriate adjustments for populations served are available for review and use by the workgroup
Workgroup and subcommittee meetings are operational in nature and not considered public meetings
Findings from the workgroup would not be binding on participating agencies

2.8 Constraints

Workgroup Constraints
Workgroup members' time
Timely availability of data and information
Length of approval process for deliverables

Section 3. Workgroup Authority and Decisions

3.1 Funding Authority

HHSC shall coordinate with DSHS, ERS, TDCJ, and TRS to compare healthcare data, including outcome measures, to identify outliers and improvements for efficiency and quality that can be implemented within each healthcare system. To administer the data comparison, HHSC shall expend \$2.5 million per year in FY 2020 and 2021 with the UTHealth Data Center for data analysis, including individual benchmark and progress data for each agency.

3.2 Workgroup Decisions

Agencies and UTHealth should have representation at all bi-monthly in-person workgroup meetings as well as monthly subcommittee meetings. Agencies and UTHealth must reach consensus regarding decisions. The rationale and final outcomes for decisions made by consensus will be documented in the meeting minutes.

Section 4. Workgroup Organization

4.1 Workgroup Membership

Agency	Name*	Title
HHSC	Jimmy Blanton*	Director, Health Quality Institute, Medicaid & CHIP
	Janna Doan	Program Specialist, Quality Oversight
	David Lynch *	Senior Research Analyst, Quality Oversight

	Lisa Kalakanis	Director of Data Dissemination
	Briana Novian	Government Relations
	Andy Vasquez	Deputy Assoc. Commissioner, Qual. & Prog. Improvement
DSHS	Bruce Burns	Manager, THCIC
	Dr. Lara Lamprecht	Assistant Deputy Commissioner
	Dr. Stephen Pont*	Medical Director, Office of Science and Population Health
	Jeremy Triplett	Maternal and Child Health Section Director
ERS	Amy Chamberlain	Office of Strategic Initiatives
	Jennifer Chambers	Director, Government Relations
	Blaise Duran*	Director, Actuarial and Reporting Services
	Diana Kongevick	Director, Group Benefits
TDCJ	Ashley Cameron	Budget Department, TDCJ
	Karen Hall	Chief of Staff, TDCJ
	Ron Steffa*	CFO, TDCJ
	Dr. Denise DeShields*	Executive Medical Director, TTUHSC Managed Care (MC)
	Dr. Cynthia Jumper	Vice President, Health Policy, TTUHSC MC
	Will Rodriguez	Executive Director, TTUHSC MC
	Corey Shank	Assoc. Managing Director, Data & Analytics, TTUHSC MC
TRS	Dr. Owen Murray*	Vice President, UTMB Correctional Managed Care (CMC)
	John Pulvino	Senior Director, Quality & Risk Management, UTMB CMC
	Meaghan Bludau	Manager Analytics and Engagement
	Katrina Daniel	Chief Health Care Officer
UTHealth	Kyle McKay*	Analyst
	Eric Wolfe-Schacter	Analyst
	Donna Alexander	Associate Director, Center for Health Care Data
	Kara Crawford	Associate Vice President, Governmental Relations
	Dr. Cecilia Ganduglia Cazaban*	Co-Director, Center for Health Care Data
	Dr. Trudy Millard Krause*	Co-Director, Center for Health Care Data
	Rachel Vojvodic Neave	Project Manager

*primary contact

4.2 Workgroup Facilities and Resources

Resource Requirement	Responsibility
Meeting rooms for in-person full workgroup meetings (bimonthly)	HHSC is responsible for identifying in-person meeting locations and scheduling in-person meetings
Meeting facilitation services for subcommittee meetings (monthly)	UTHealth will arrange monthly WebEx teleconferences for all subcommittee meetings
Meeting minutes	UTHealth will produce meeting minutes for bimonthly full workgroup and monthly subcommittee meetings
Data analytics resources	Each agency would provide relevant data and information for agenda items

Appendix F. Agency Portals

ERS Portal – Enrollment

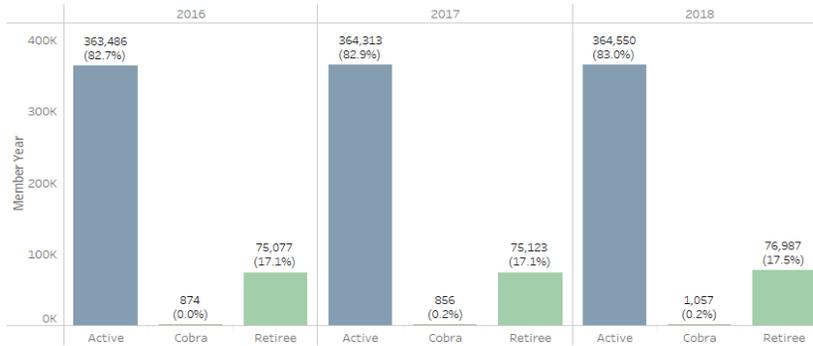
Select Metric
 ○ Unique Count
 ● Member Year

Employee Enrollment Status
 ■ Active
 ■ Cobra
 ■ Retiree

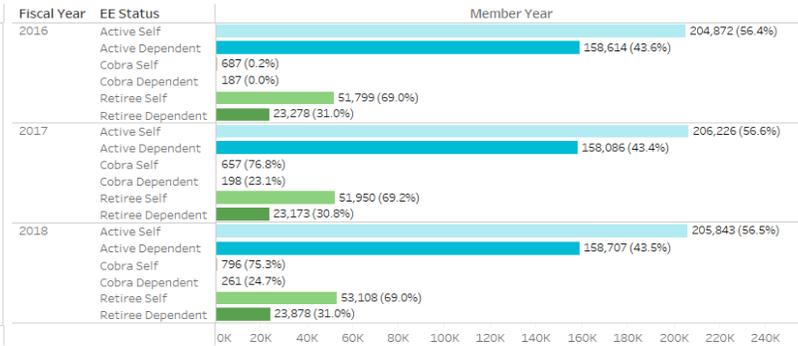
Self/Dependent Enrollment Status
 ■ Active Self
 ■ Active Dependent
 ■ Cobra Self
 ■ Cobra Dependent
 ■ Retiree Self
 ■ Retiree Dependent



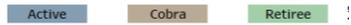
Member Year



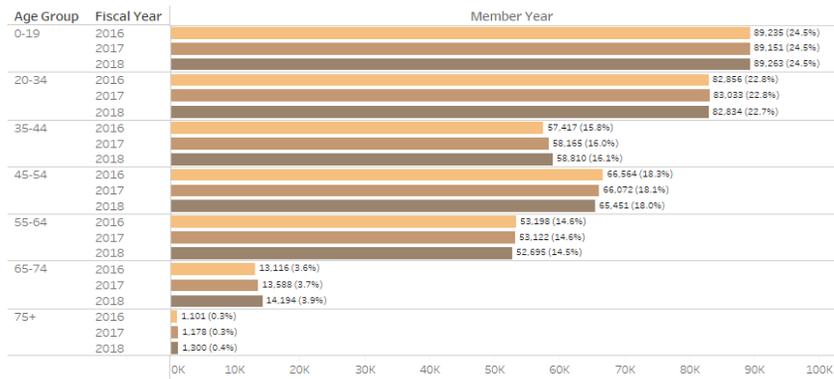
Self/Dependent: Member Year



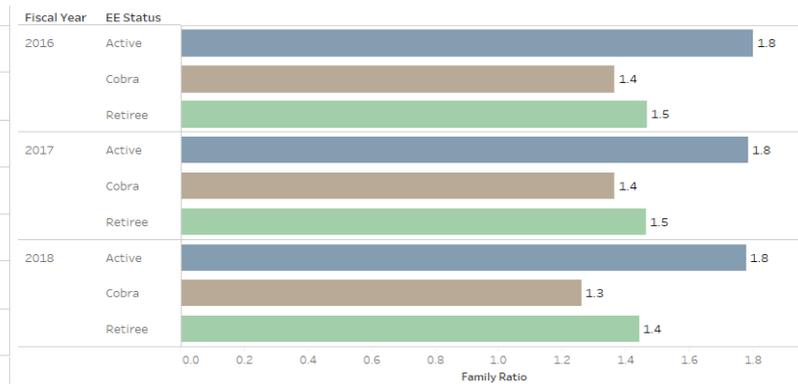
Select Employee Enrollment Status



Member Year By Active Age Group



Family Ratio



ERS Portal – Claims / Encounters



Select Claims Metric

- Total Medical Claims Count
- Average Medical Claims Count
- Total Rx Scripts Count
- Average Rx Scripts Count

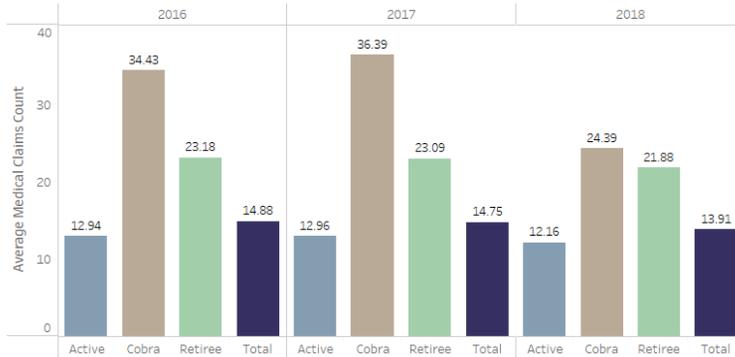
Employee Enrollment Status

- Active
- Cobra
- Retiree
- Total

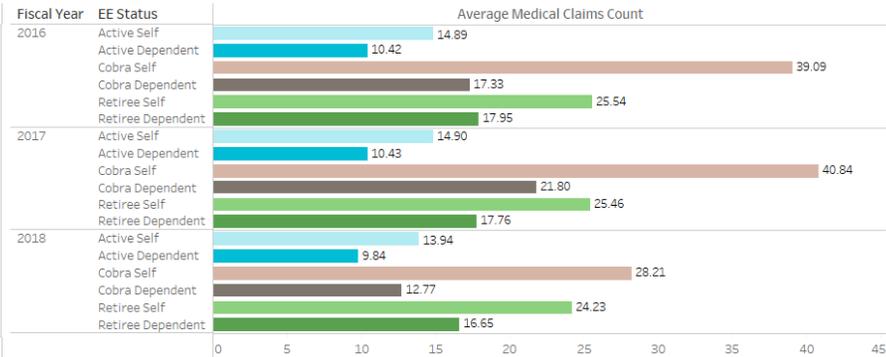
Self/Dependent Enrollment Status

- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent

Average Medical Claims Count



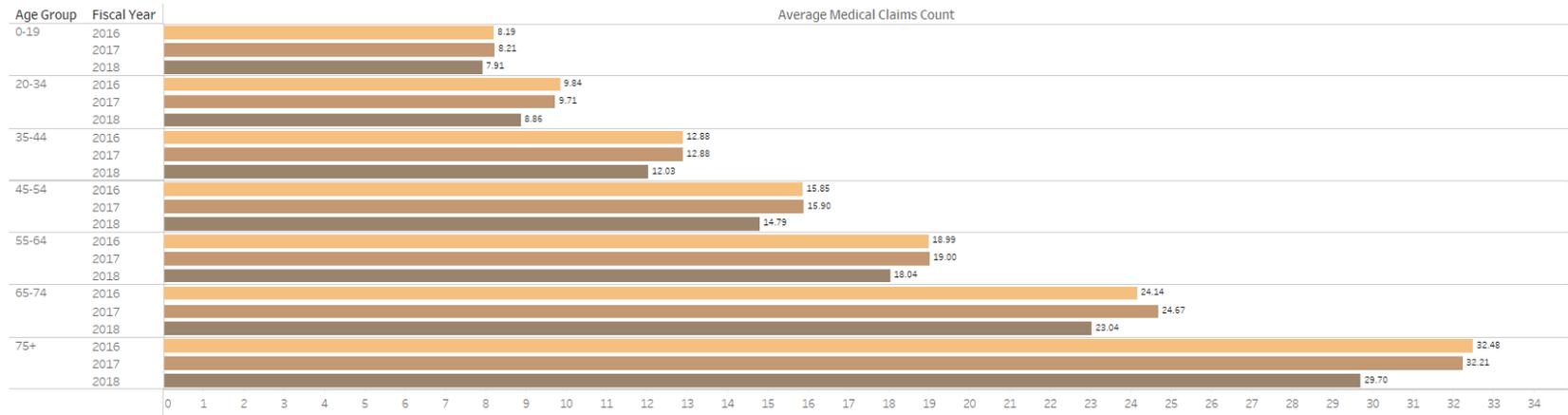
Self/Dependent: Average Medical Claims Count



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Average Medical Claims Count By Active Age Group



ERS Portal – Expenditures



Select Cost Metric

- Total Allowed Amount Medical
- Average Total Medical Cost PMPY
- Total Rx Cost
- Average Rx Cost PMPY
- Total Cost (Medical and Rx)
- Average Total Cost PMPY (Medical and Rx)

Employee Enrollment Status

- Active
- Cobra
- Retiree
- Total

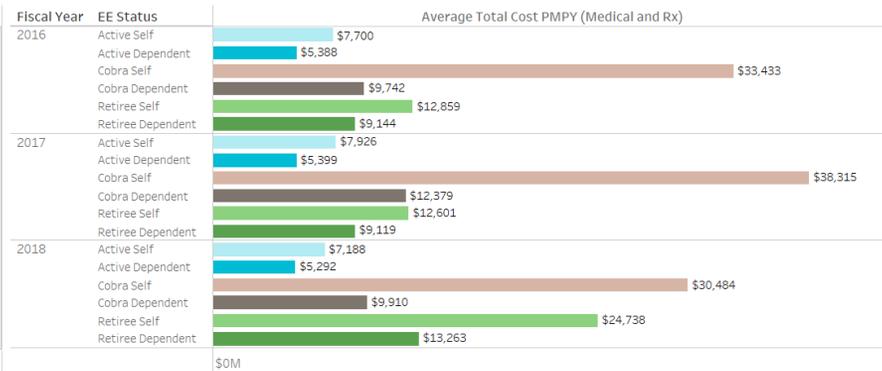
Self/Dependent Enrollment Status

- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent

Average Total Cost PMPY (Medical and Rx)



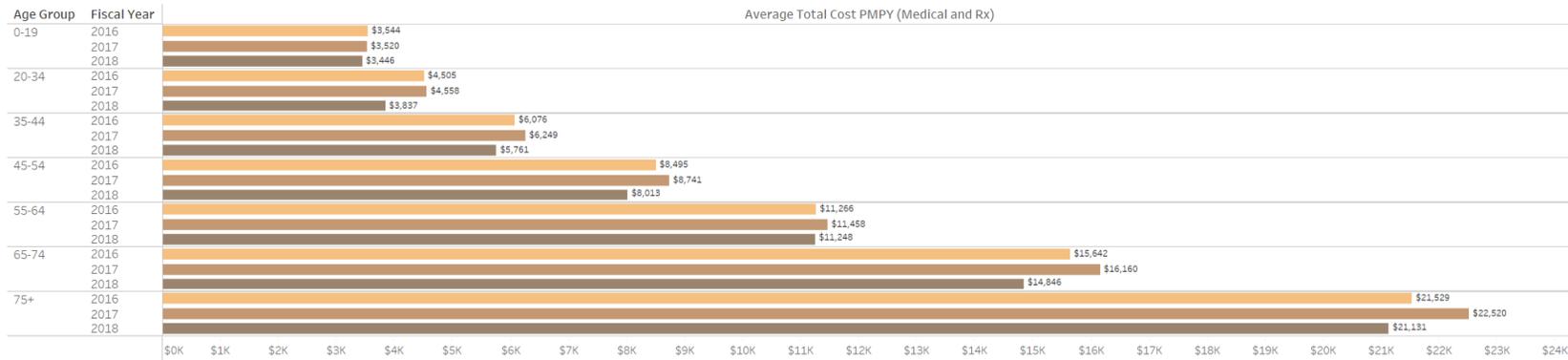
Self/Dependent: Average Total Cost PMPY (Medical and Rx)



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Average Total Cost PMPY (Medical and Rx) By Active Age Group



ERS Portal – Active Benchmark

■ Average Total Cost Medical PMPY
■ Average Total Cost Medical PMPY Benchmark

■ Average Total Cost Rx PMPY
■ Average Total Cost Rx PMPY Benchmark

■ Average Total Cost PMPY
■ Average Total Cost PMPY Benchmark



Average Total Cost Medical PMPY



Average Total Cost Rx PMPY



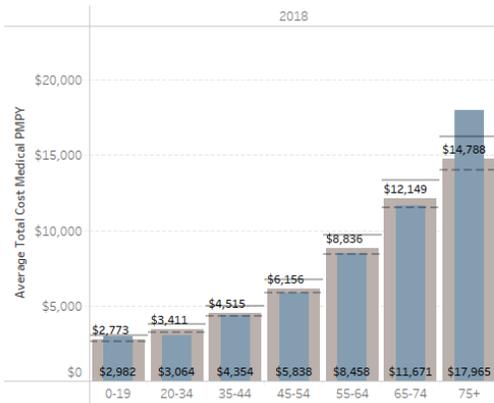
Average Total Cost PMPY



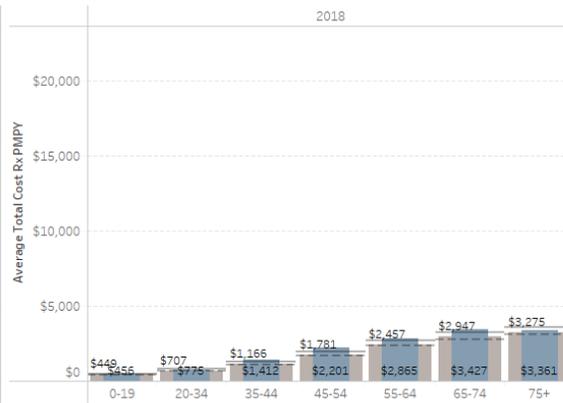
Fiscal Year

- 2016
- 2017
- 2018

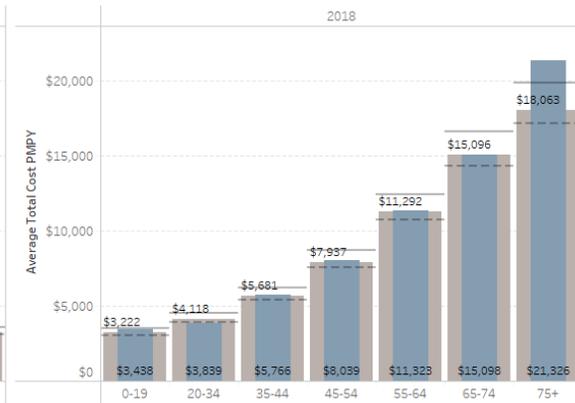
Average Total Cost Medical PMPY by Age Group



Average Total Cost Rx PMPY by Age Group



Average Total Cost PMPY by Age Group



ERS Portal – High Cost Claimants

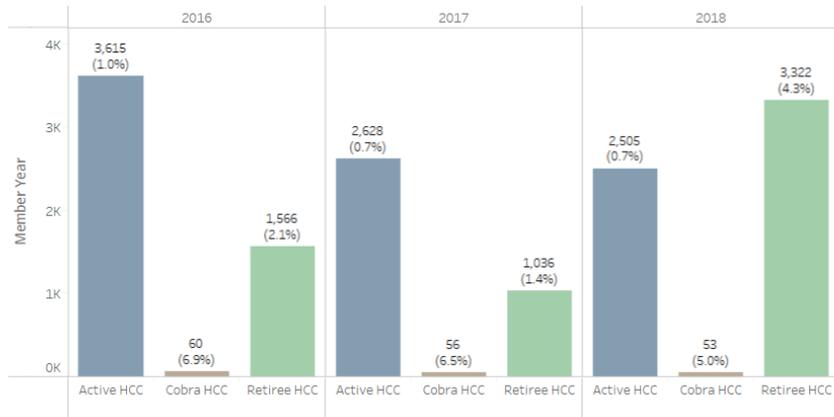


Select Metric
 Unique Count
 Member Year

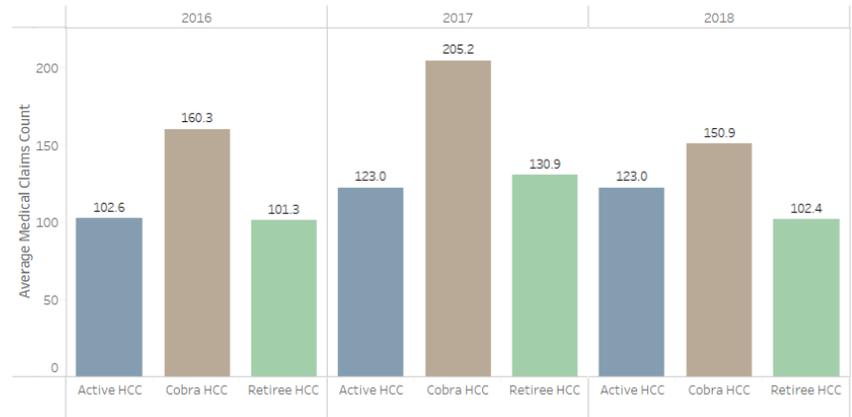
Employee Enrollment Status
 Active HCC
 Cobra HCC
 Retiree HCC

Select Claims Metric
 Total Medical Claims Count
 Average Medical Claims Count
 Total Rx Scripts Count
 Average Rx Scripts Count

Member Year



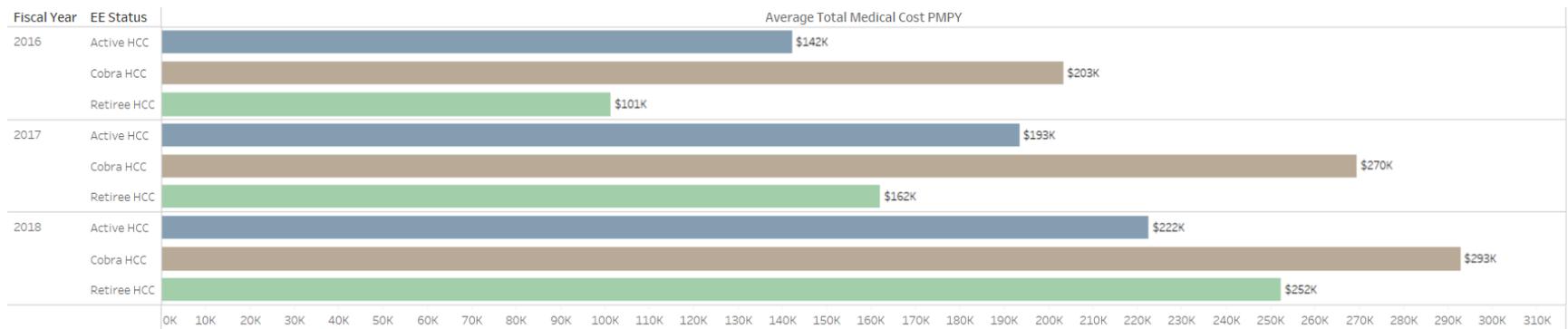
Average Medical Claims Count



Select Cost Metric

Average Total Medical Cost PMPY
 Average Rx Cost PMPY
 Average Total Cost PMPY (Medical and Rx)

Average Total Medical Cost PMPY



ERS Portal – Utilization

Admission/Visit Type

- ED Visits
- Acute Hospital Admission
- Acute Hospital 30 Day Readmission

Select Utilization Metric

- Rate
- Count of Admission/Visits

Employee Enrollment Status

- Active
- Cobra
- Retiree
- Total

Self/Dependent Enrollment Status

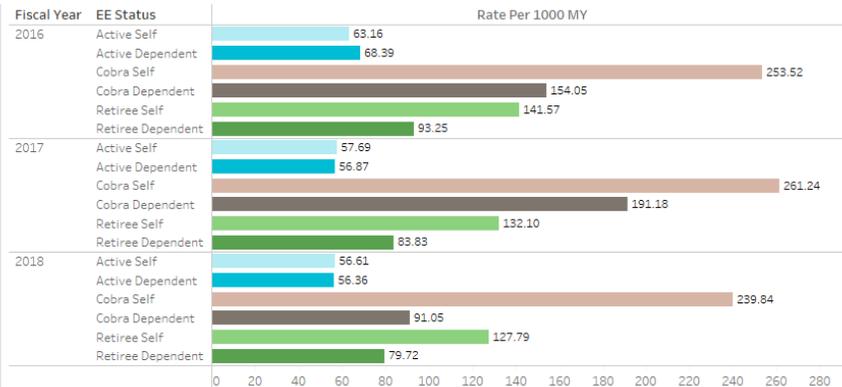
- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent



Acute Hospital Admission: Rate Per 1000 MY



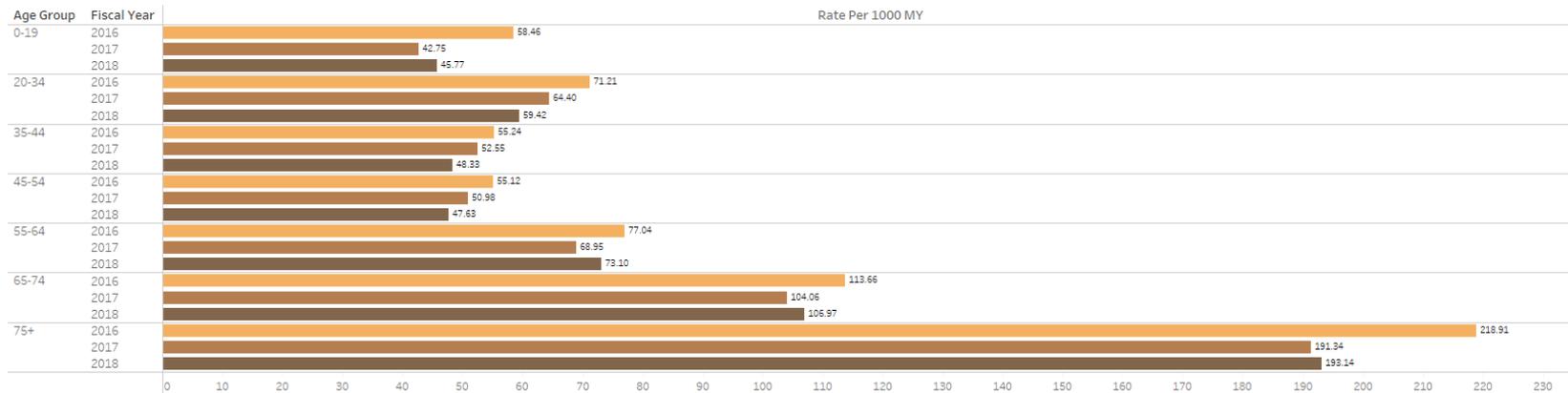
Self/Dependent Acute Hospital Admission: Rate Per 1000 MY



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Acute Hospital Admission: Rate Per 1000 MY by Active Age Group



ERS Portal – Utilization Cost

Admission/Visit Type
 ED Visits
 Acute Hospital Admission

Select Utilization Cost Metric
 Total Allowed Amount Per Visit
 Average Allowed Amount Per Visit

Employee Enrollment Status
 Active
 Cobra
 Retiree
 Total

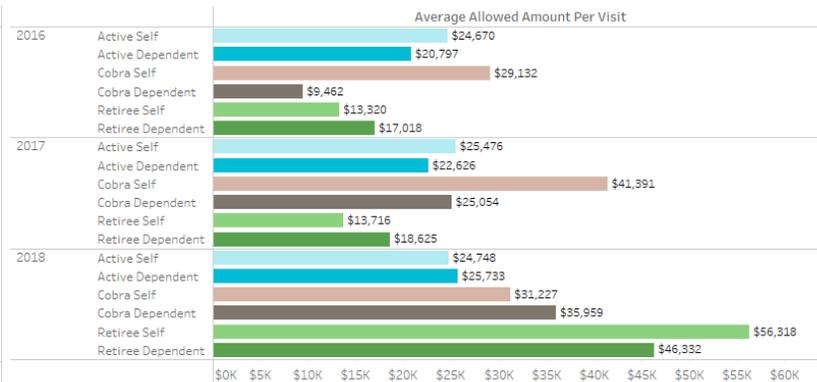
Self/Dependent Enrollment Status
 Active Self
 Active Dependent
 Cobra Self
 Cobra Dependent
 Retiree Self
 Retiree Dependent



Acute Hospital Admission: Average Allowed Amount Per Visit



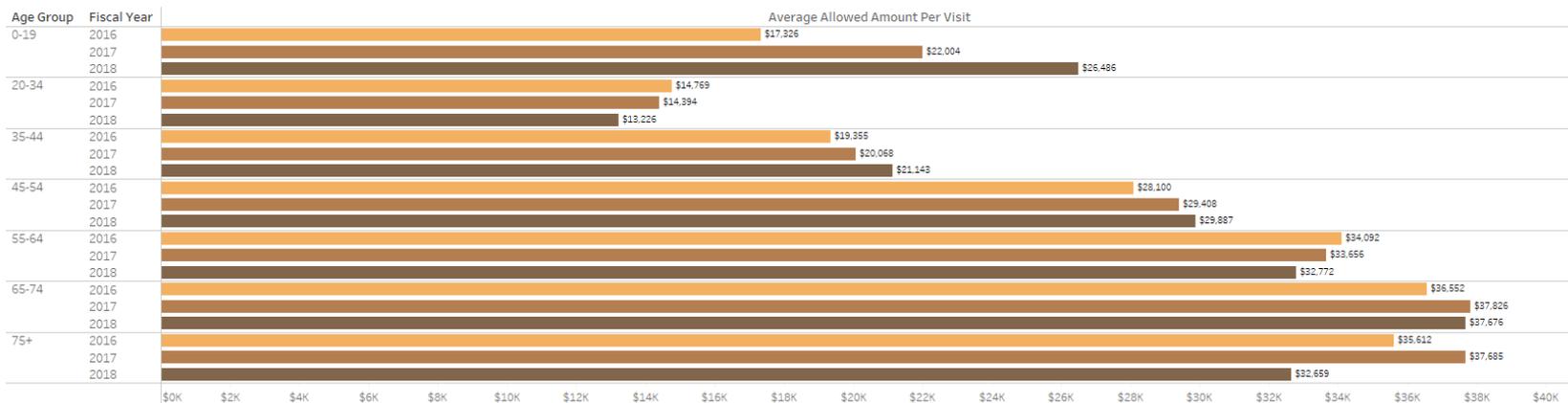
Self/Dependent Acute Hospital Admission: Average Allowed Amount Per Visit



Select Employee Enrollment Status

Active Cobra Retiree

Acute Hospital Admission: Average Allowed Amount Per Visit by Active Age Group



ERS Portal – Condition Demographics

Condition
Diabetes

Employee Enrollment Status

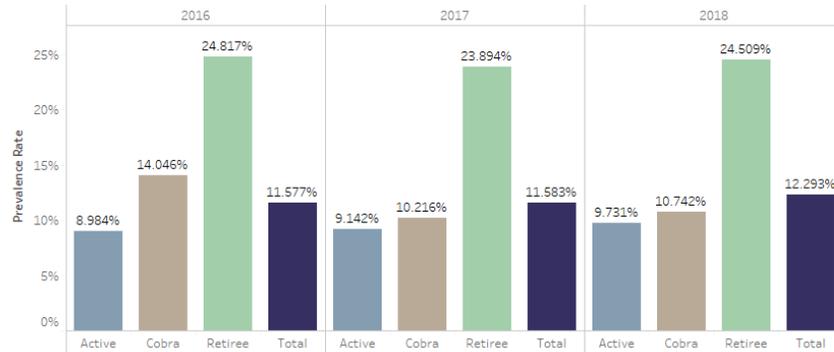
- Active
- Cobra
- Retiree
- Total

Self/Dependent Enrollment Status

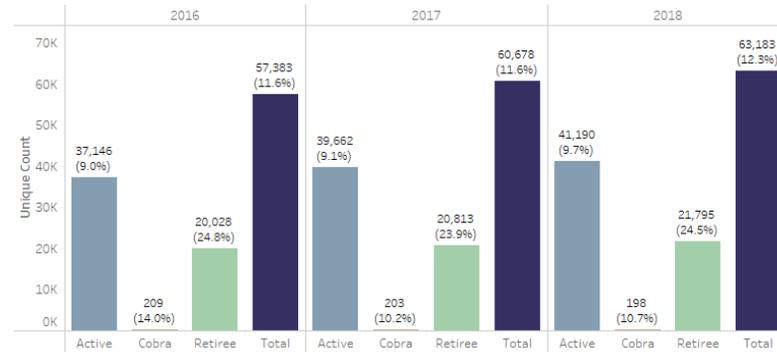
- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent



Prevalence Rate for Diabetes



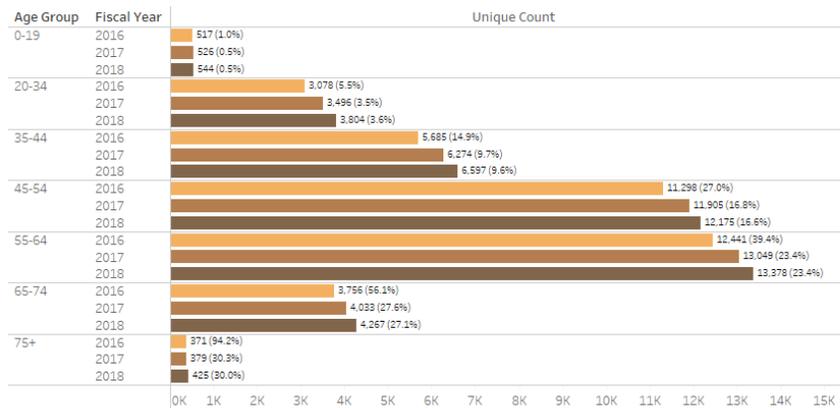
Unique Count for Diabetes



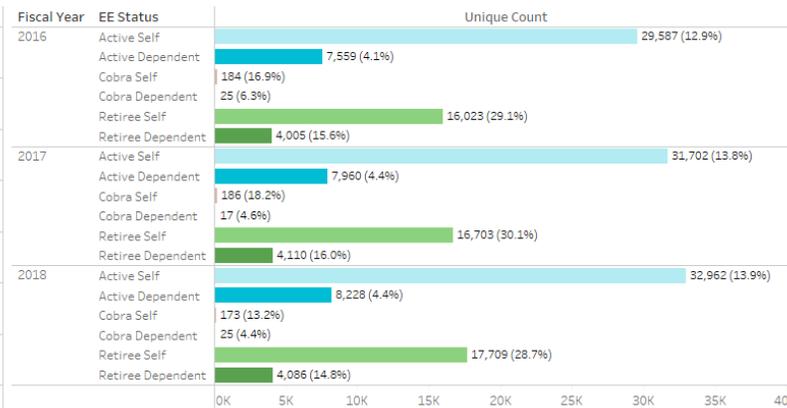
Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Unique Count for Diabetes by Active Age Group



Unique Count for Diabetes



ERS Portal – Condition Cost

Condition
Diabetes

- Select Condition Cost Metric
- Average Total Cost Medical PMPY
 - Average Cost Rx PMPY
 - Average Total Cost Medical Rx PMPY
 - Ratio of Ave Cost PMPY to Ave Total PMPY

- Employee Enrollment Status
- Active
 - Cobra
 - Retiree
 - Total

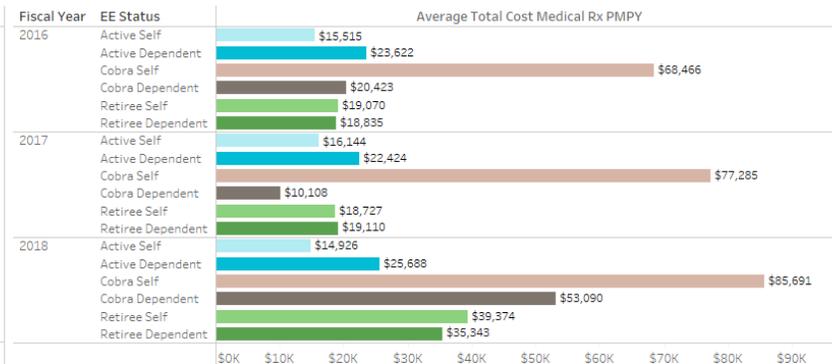
- Self/Dependent Enrollment Status
- Active Self
 - Active Dependent
 - Cobra Self
 - Cobra Dependent
 - Retiree Self
 - Retiree Dependent



Average Total Cost Medical Rx PMPY for Diabetes



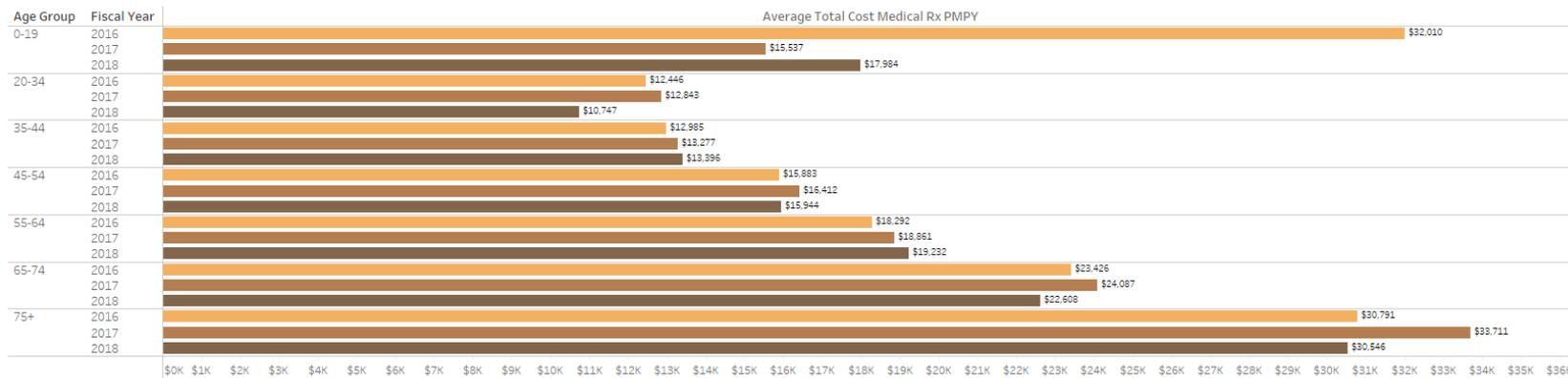
Average Total Cost Medical Rx PMPY for Diabetes



Select Employee Enrollment Status

- Active Cobra Retiree

Average Total Cost Medical Rx PMPY for Diabetes by Active Age Group



ERS Portal – Condition Utilization

Condition
Diabetes

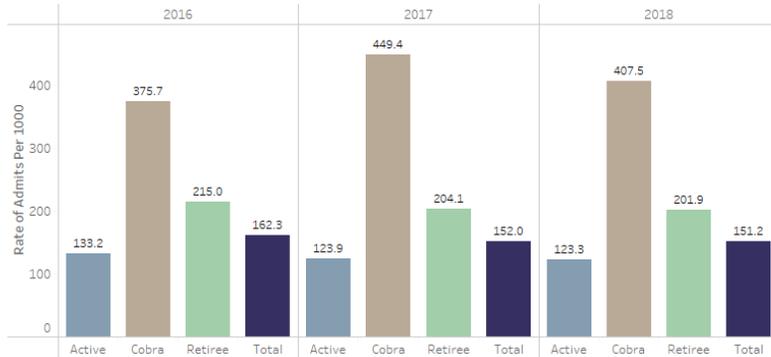
- Admit Type
- Emergency Visits
 - Acute Inpatient Admits
 - Readmits Within 30 Days

- Employee Enrollment Status
- Active
 - Cobra
 - Retiree
 - Total

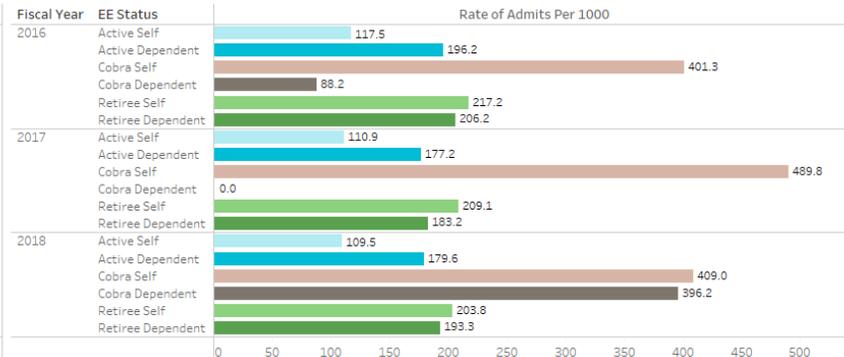
- Self/Dependent Enrollment Status
- Active Self
 - Active Dependent
 - Cobra Self
 - Cobra Dependent
 - Retiree Self
 - Retiree Dependent



Rate of Admits Per 1000 for Diabetes



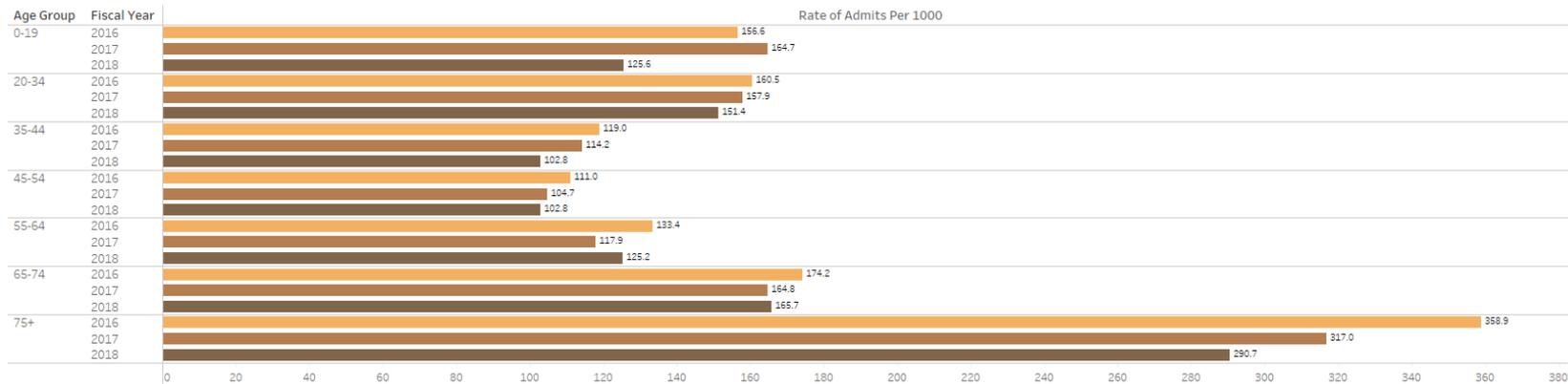
Rate of Admits Per 1000 for Diabetes



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Rate of Admits Per 1000 for Diabetes by Active Age Group



HHSC Portal – Enrollment

Select Metric

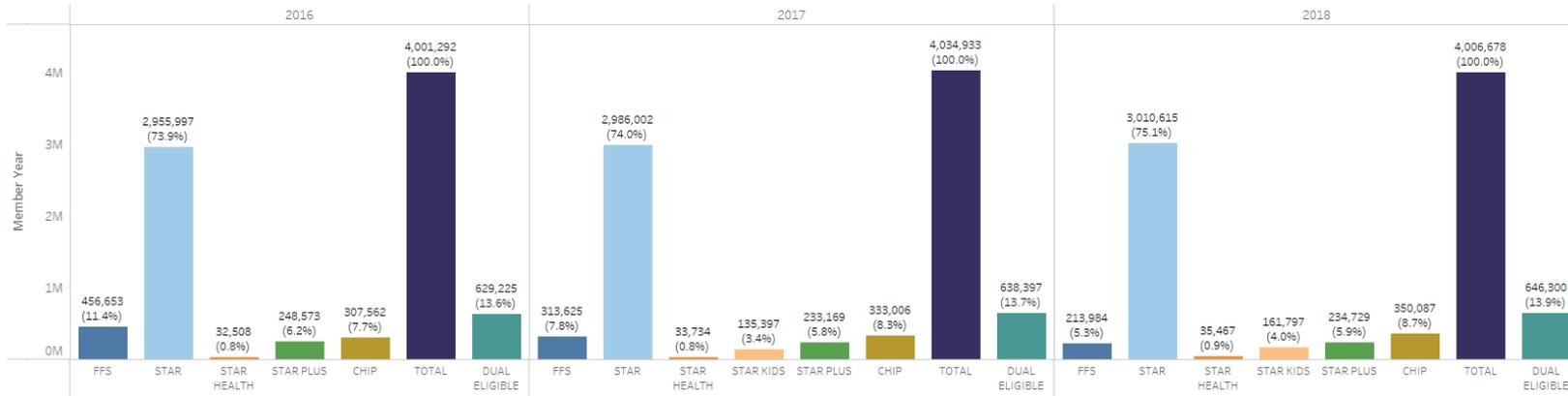
- Unique Count
- Member Year

Medicaid Program

- FFS
- STAR
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP
- TOTAL
- DUAL ELIGIBLE



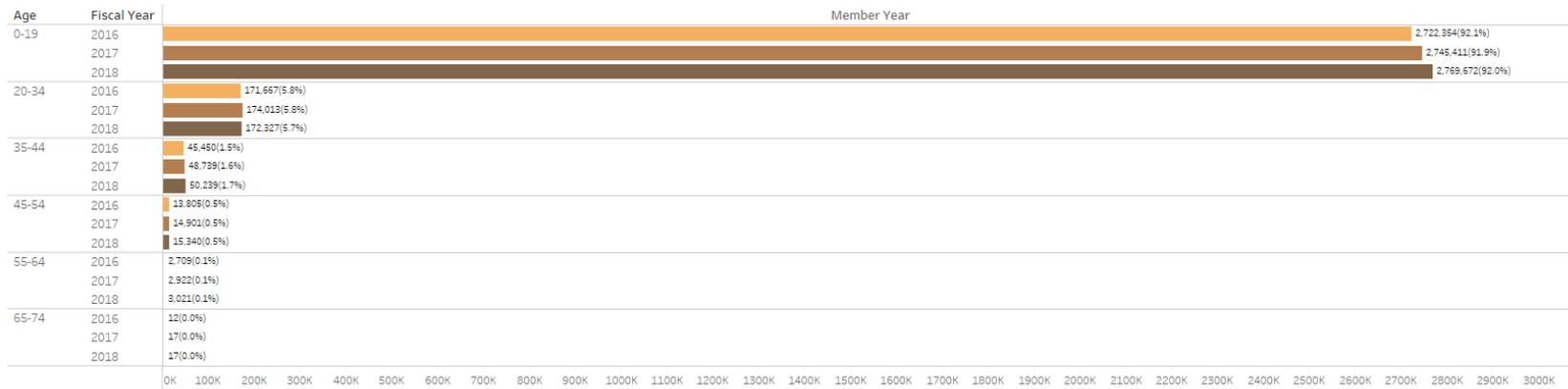
Member Year



Select Medicaid Program

- FFS
- STAR**
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP

Member Year by Age Group for STAR



HHSC Portal – Claims / Encounters



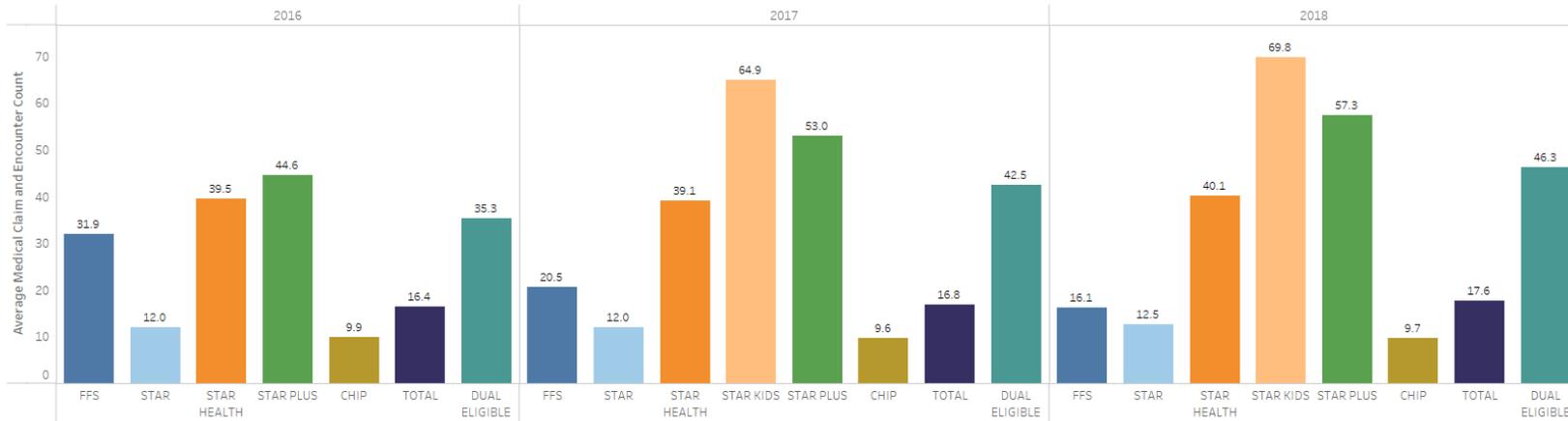
Select Claims Metric

- Total Medical Claim and Encounter Count
- Total Rx Claim Count
- Average Medical Claim and Encounter Count
- Average Rx Claim Count

Medicaid Program

- FFS
- STAR
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP
- TOTAL
- DUAL ELIGIBLE

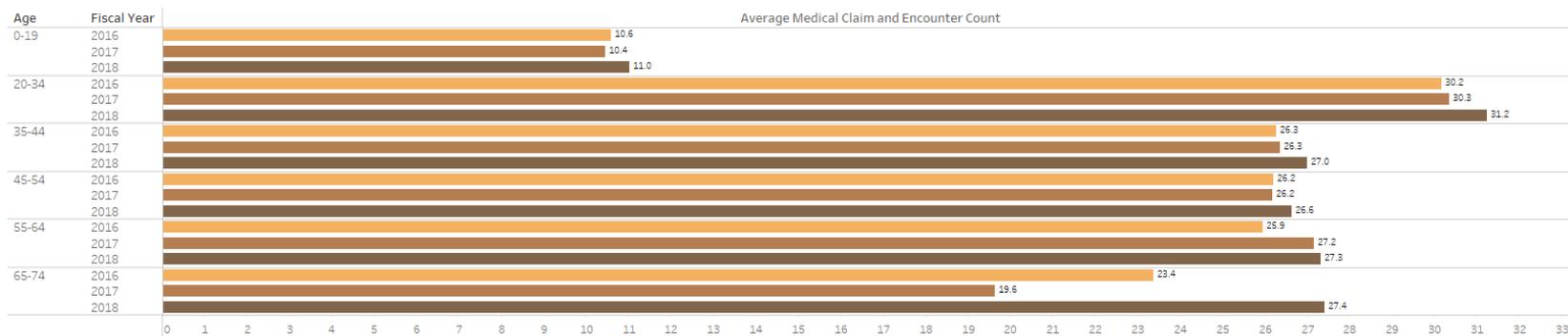
Average Medical Claim and Encounter Count



Select Medicaid Program

- FFS
- STAR
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP

Average Medical Claim and Encounter Count by Age Group for STAR



HHSC Portal – Expenditures



- Select Cost Metric
- Total Allowed Amount Medical
 - Total Cost Rx
 - Total Cost (Medical and Rx)
 - Average Total Cost Medical PMPY
 - Average Cost Rx PMPY
 - Average Total Cost Medical and Rx PMPY

- Medicaid Program
- FFS
 - STAR
 - STAR HEALTH
 - STAR KIDS
 - STAR PLUS
 - CHIP
 - TOTAL
 - DUAL ELIGIBLE

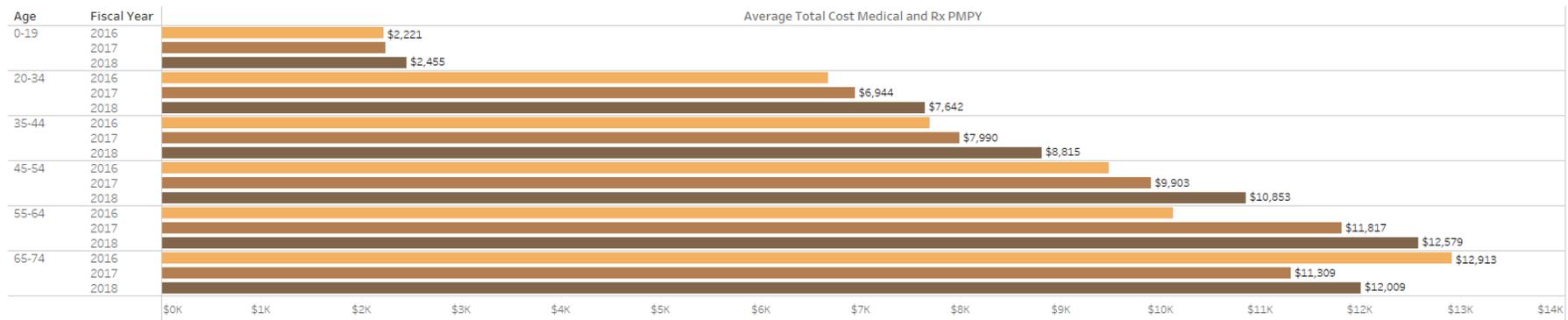
Average Total Cost Medical and Rx PMPY



Select Medicaid Program

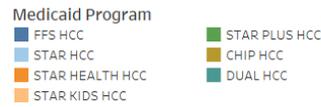
- FFS
- STAR
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP

Average Total Cost Medical and Rx PMPY by Age Group for STAR

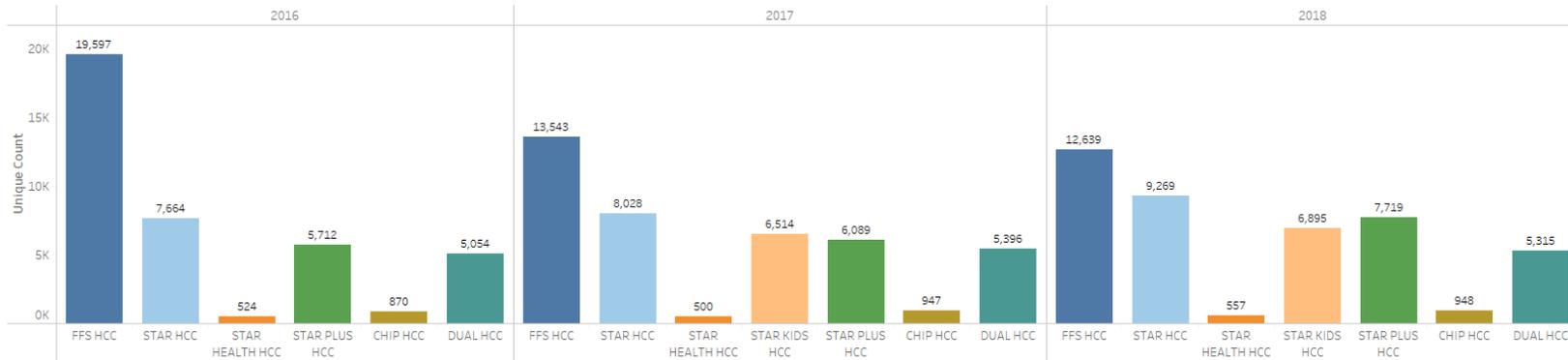


HHSC Portal – High Cost Claimants

High Cost Claimants (HCC) with PMPY >=\$100,000



Unique Count



Select Cost Metric

- Average Total Medical Cost PMPY
- Average Rx Cost PMPY
- Average Total Cost Medical and Rx PMPY

Average Total Medical Cost PMPY



HHSC Portal – Utilization

Admission/Visit Type

- Acute Inpatient Admissions
- Emergency Visits with No Inpatient Admissions
- Readmissions Within 30 Days

Select Utilization Metric

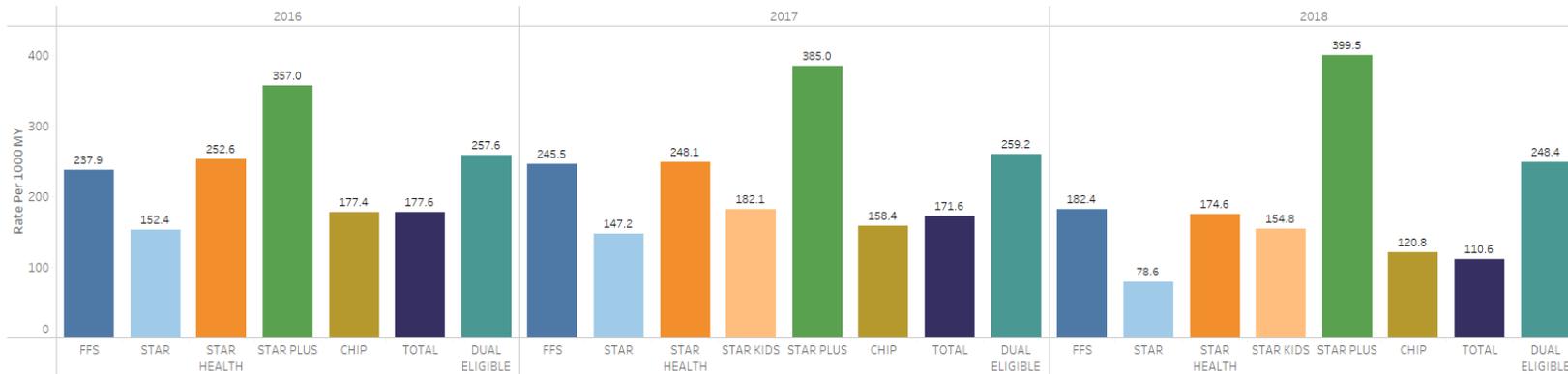
- Rate
- Count of Admission/Visits

Medicaid Program

- FFS
- STAR
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP
- TOTAL
- DUAL ELIGIBLE



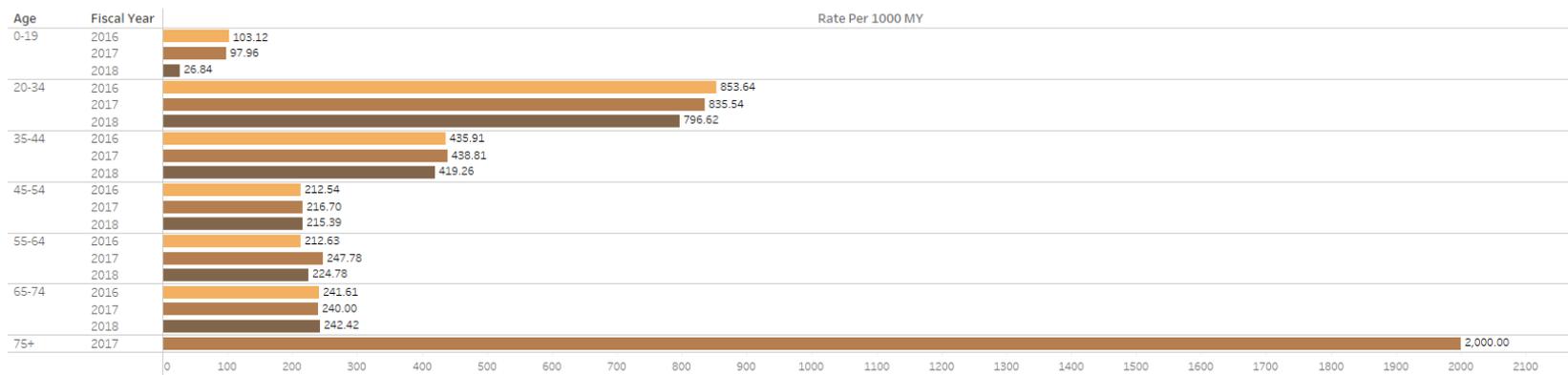
Acute Inpatient Admissions: Rate Per 1000 MY



Select Medicaid Program



Acute Inpatient Admissions: Rate Per 1000 MY by Age Group for STAR



HHSC Portal – Utilization Cost

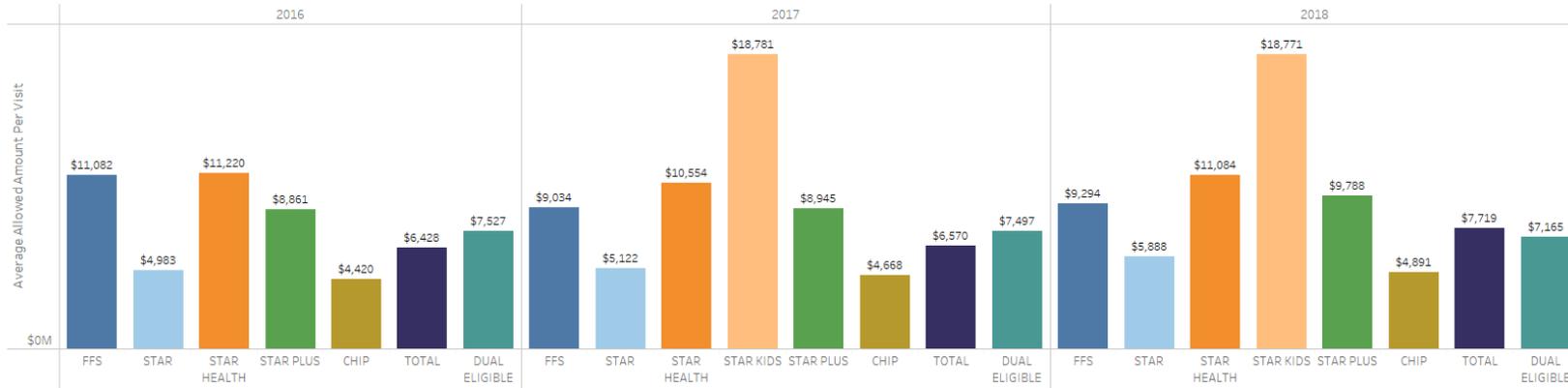
- Admission/Visit Type
- Acute Inpatient Admissions
 - Emergency Visits with No Inpatient Admissions

- Select Utilization Cost Metric
- Total Allowed Amount
 - Average Allowed Amount Per Visit

- Medicaid Program
- FFS
 - STAR
 - STAR HEALTH
 - STAR KIDS
 - STAR PLUS
 - CHIP
 - TOTAL
 - DUAL ELIGIBLE



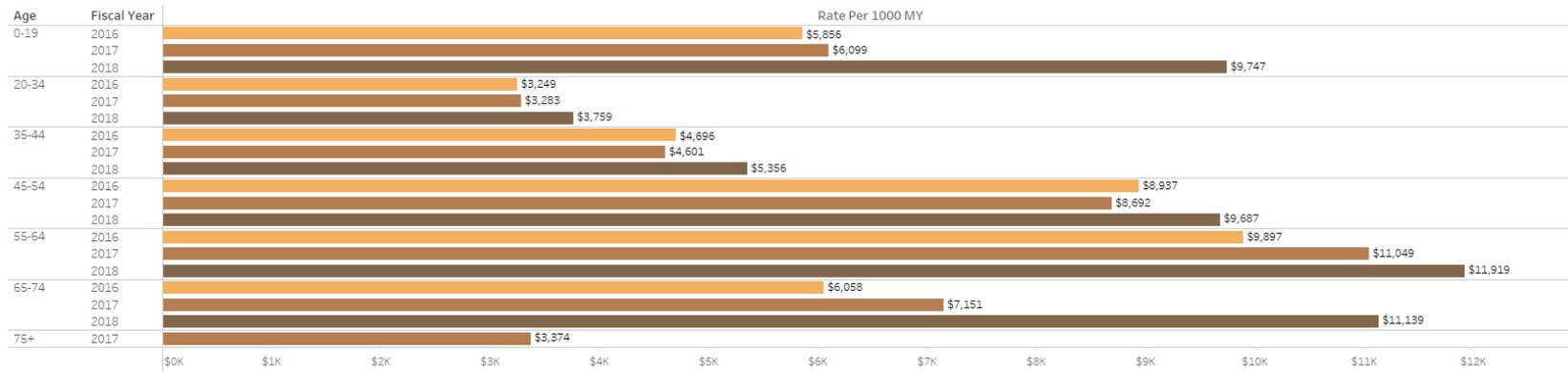
Acute Inpatient Admissions: Average Allowed Amount Per Visit



Select Medicaid Program

- FFS
- STAR**
- STAR HEALTH
- STAR KIDS
- STAR PLUS
- CHIP

Acute Inpatient Admissions: Average Allowed Amount Per Visit by Age Group for STAR



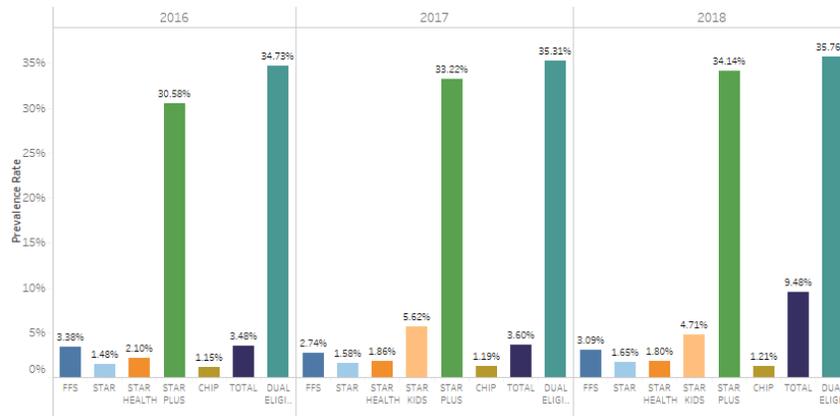
HHSC Portal – Condition Demographics

Condition
Diabetes

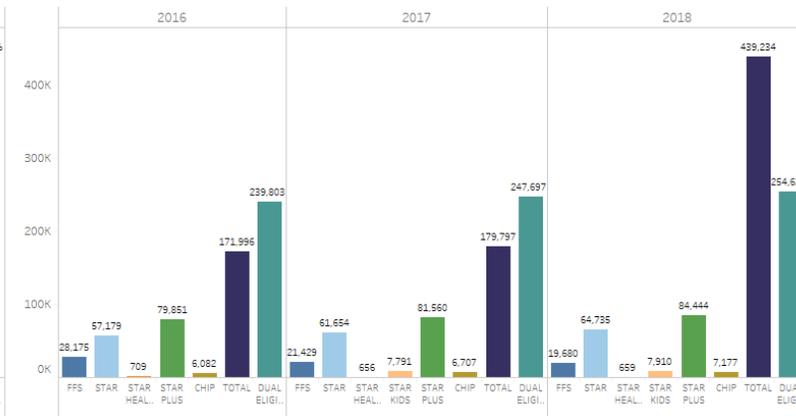
Medicaid Program
 FFS
 STAR
 STAR HEALTH
 STAR KIDS
 STAR PLUS
 CHIP
 TOTAL
 DUAL ELIGIBLE



Prevalence Rate for Diabetes



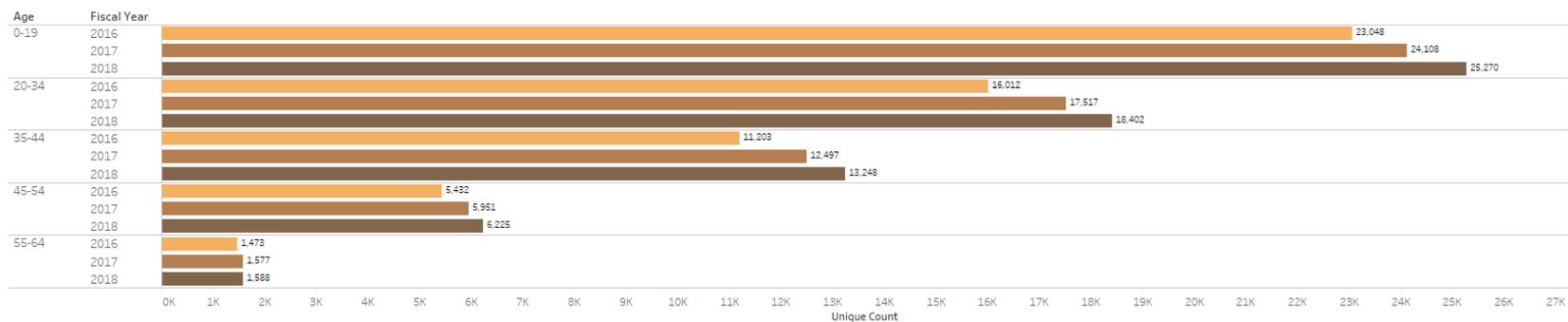
Unique Count for Diabetes



Select Medicaid Program

- FFS
- STAR
- STAR KIDS
- STAR PLUS
- CHIP
- STAR HEALTH

Unique Count for Diabetes by Age Group for STAR



HHSC Portal – Condition Cost

Condition
Diabetes

- Select Condition Cost Metric
- Average Medical Cost PMPY
 - Average Rx Cost PMPY
 - Average Medical and Rx Cost PMPY
 - Ratio of Average Cost PMPY to Average Program Population Cost PMPY

- Medicaid Program
- CHIP
 - DUAL ELIGIBLE
 - FFS
 - STAR

- STAR HEALTH
- STAR KIDS
- STAR PLUS
- TOTAL



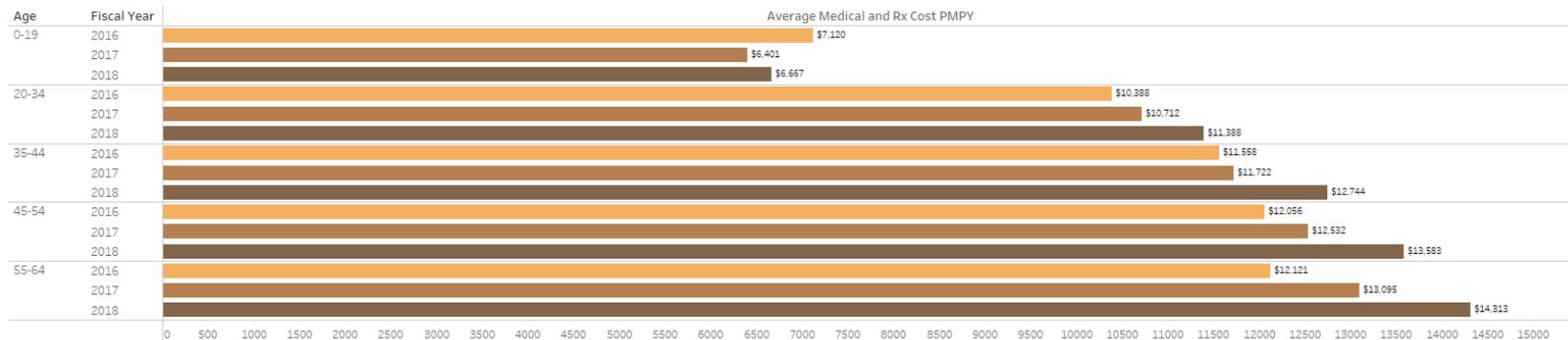
Average Medical and Rx Cost PMPY for Diabetes



Select Medicaid Program

- FFS
- STAR**
- STAR KIDS
- STAR PLUS
- CHIP
- STAR HEALTH

STAR: Average Medical and Rx Cost PMPY for Diabetes



HHSC Portal – Condition Utilization

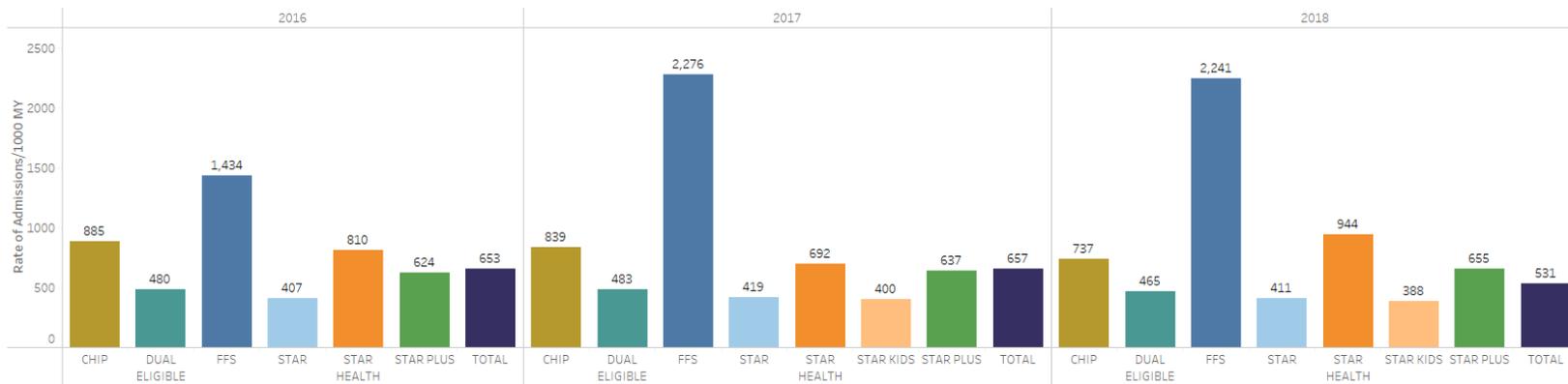
Condition
Diabetes

Admission Type
 Acute Inpatient Admits
 Emergency Visits with No Inpatient Admissions
 Readmits Within 30 Days

Medicaid Program
 CHIP
 DUAL ELIGIBLE
 FFS
 STAR
 STAR HEALTH
 STAR KIDS
 STAR PLUS
 TOTAL



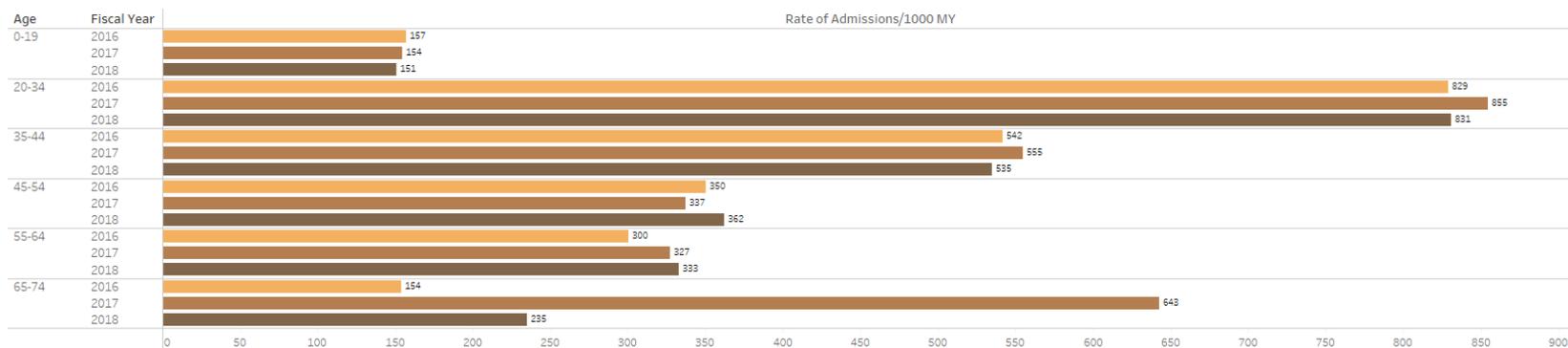
Rate of Admissions/1000 MY for Diabetes



Select Medicaid Program

- FFS
- STAR
- STAR KIDS
- STAR PLUS
- CHIP
- STAR HEALTH

STAR: Rate of Admissions/1000 MY for Diabetes



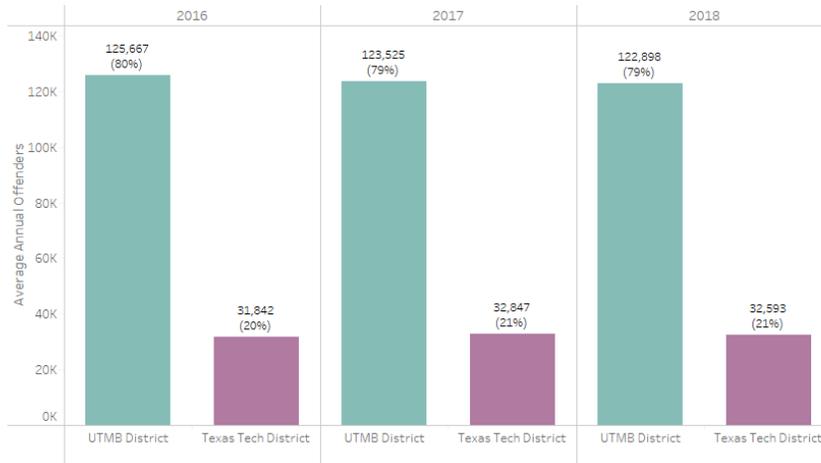
TDCJ Portal – Demographics

Select Demo Metric
 Unique Offenders
 Average Annual Offenders

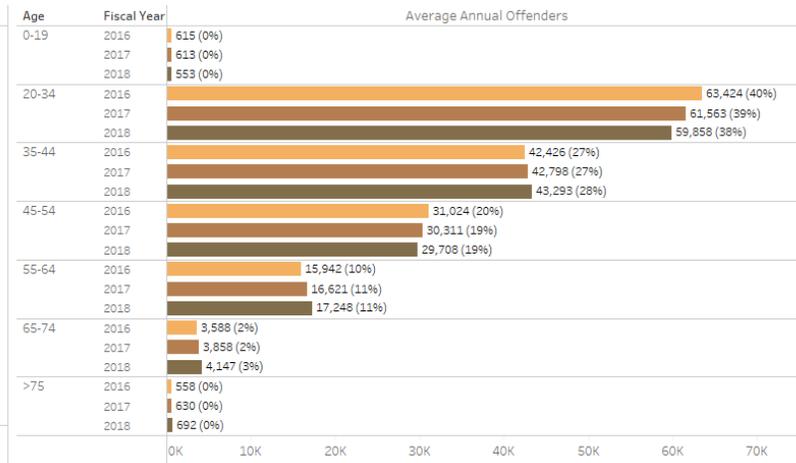
TDCJ
 UTMB District
 Texas Tech District



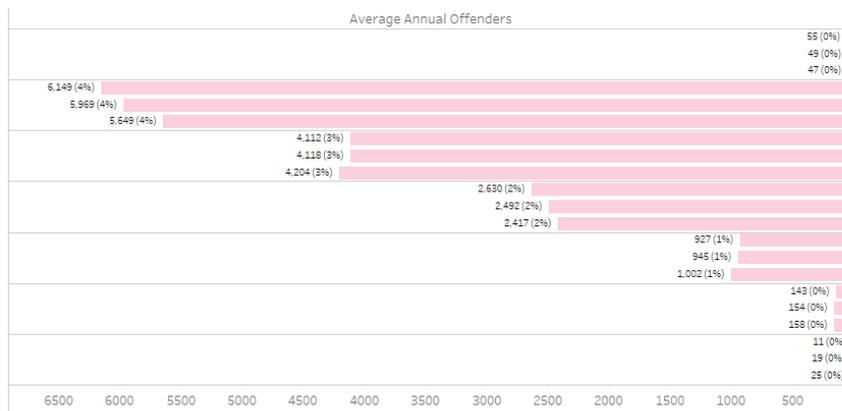
Average Annual Offenders



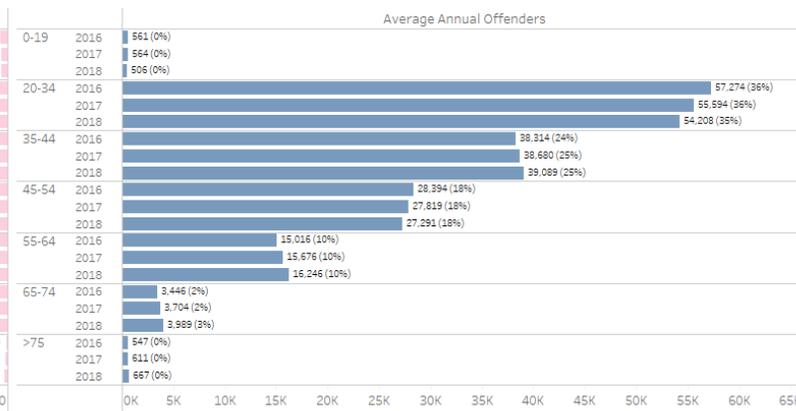
By Age Group



Female



Male



TDCJ Portal – Medical Expenditures

Select Cost Metric

- Total Allowed Amount
- Total Allowed Amount Per Offender Per Year
- Total Charged Amount
- Total Charged Amount Per Offender Per Year

TDCJ

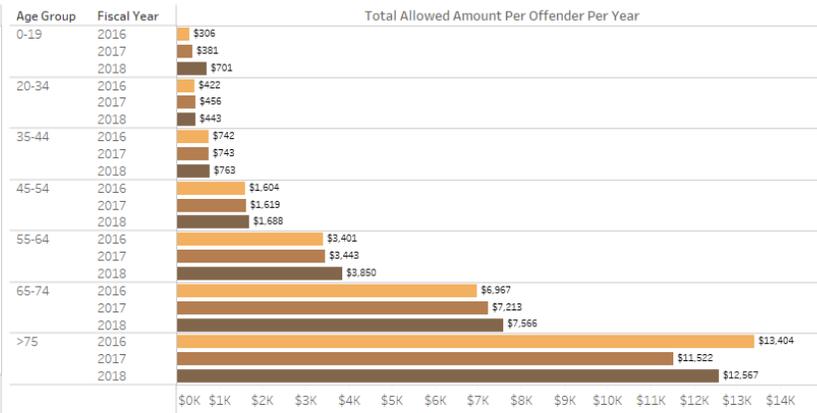
- UTMB District
- Texas Tech District
- Total



Total Allowed Amount Per Offender Per Year



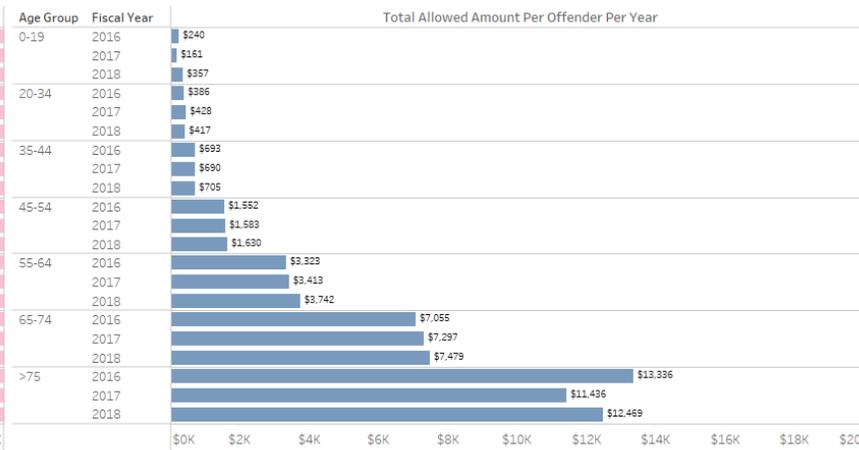
By Age Group



Female



Male



TDCJ Portal – Pharmacy

Select Rx Metric

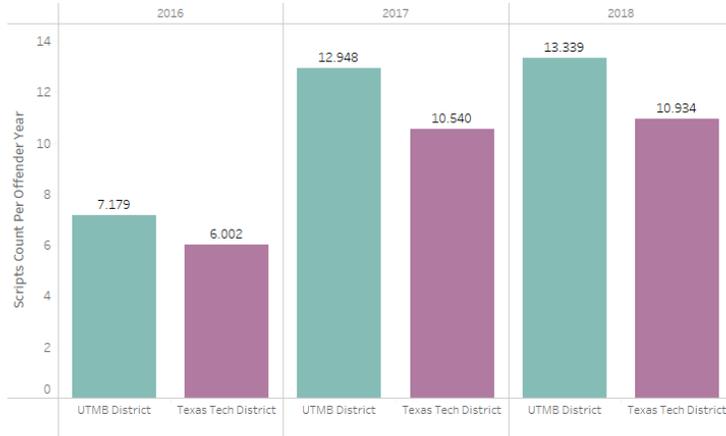
- Scripts Count
- Scripts Count Per Offender Year

TDCJ

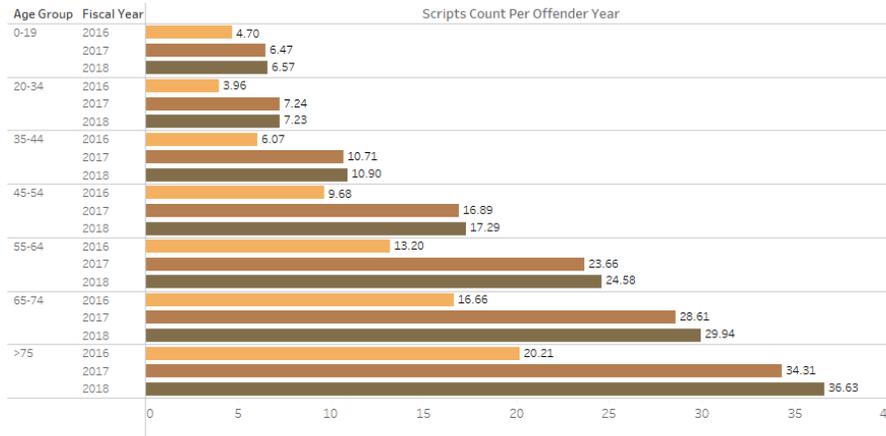
- UTMB District
- Texas Tech District



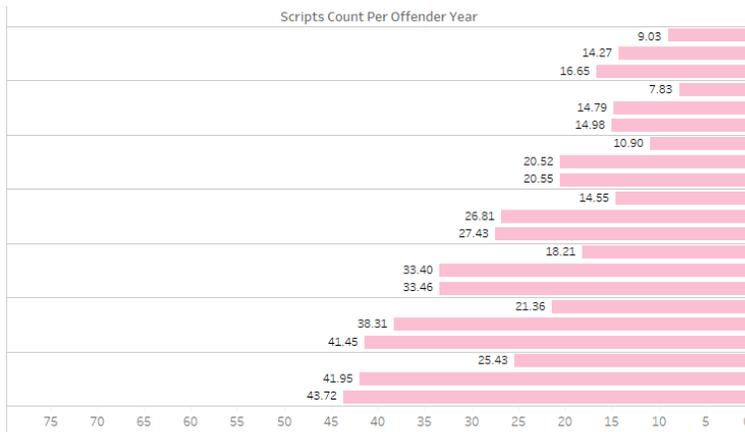
Scripts Count Per Offender Year



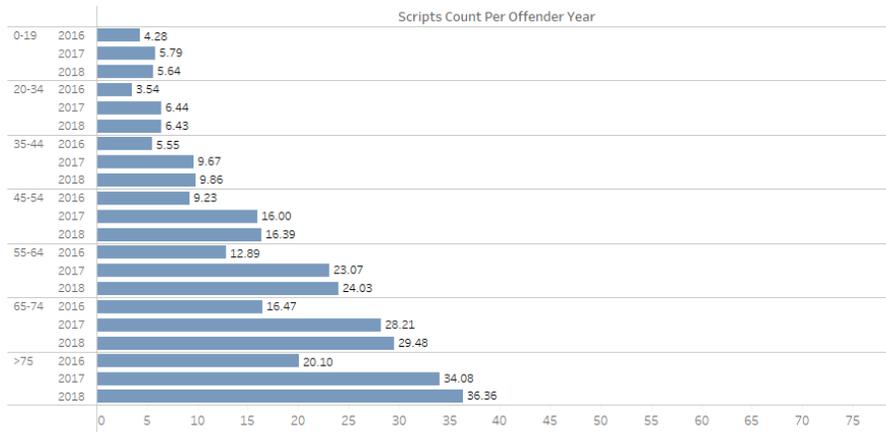
By Age Group



Female



Male



TDCJ Portal – Utilization

Select Utilization Measure

- Emergency Visits
- Emergency Visits with no Inpatient Admission
- Inpatient
- Outpatient
- Professional

Service Provider

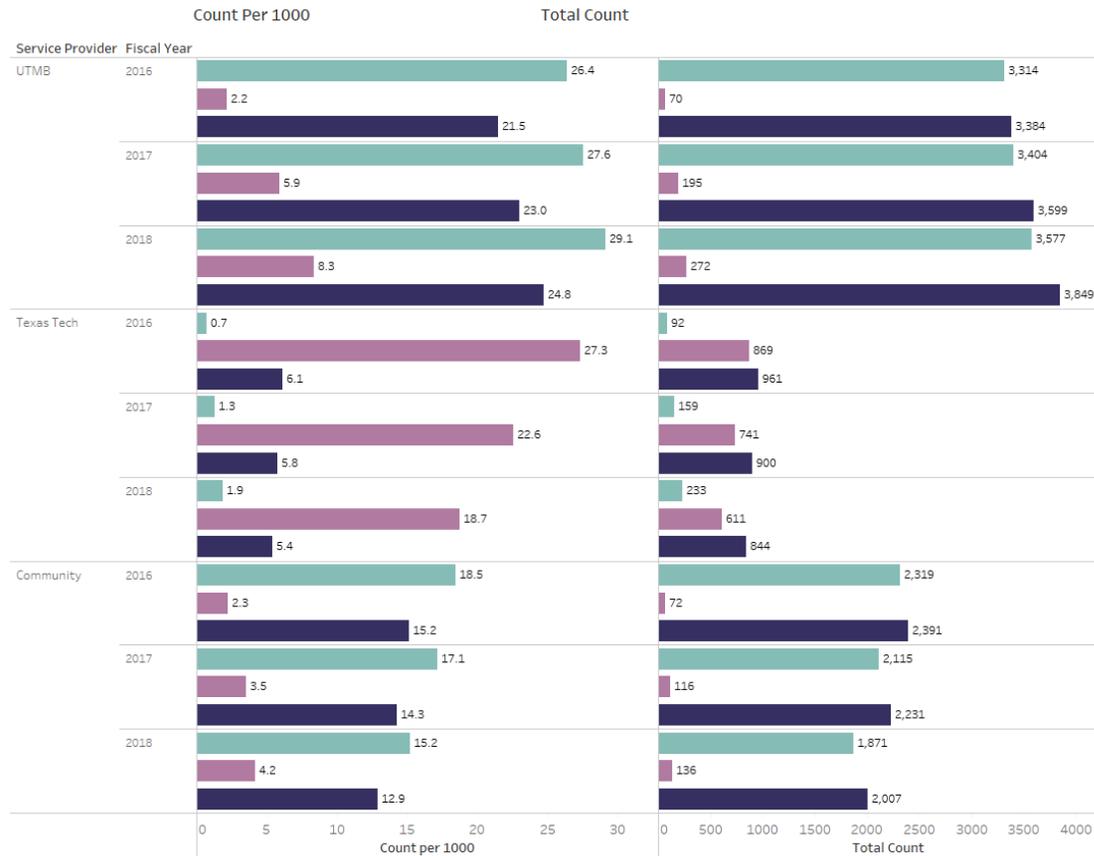
All

TDCJ

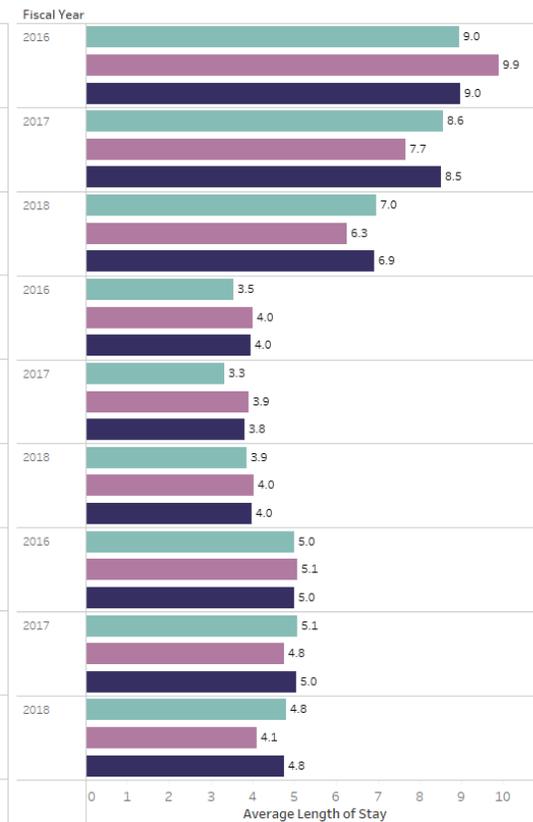
- UTMB District
- Texas Tech District
- Total



Inpatient



Average Length of Stay for Inpatient Admits



TDCJ Portal – Utilization Cost

Select Utilization Measure

- Emergency Visits
- Inpatient
- Outpatient
- Professional

Service Provider

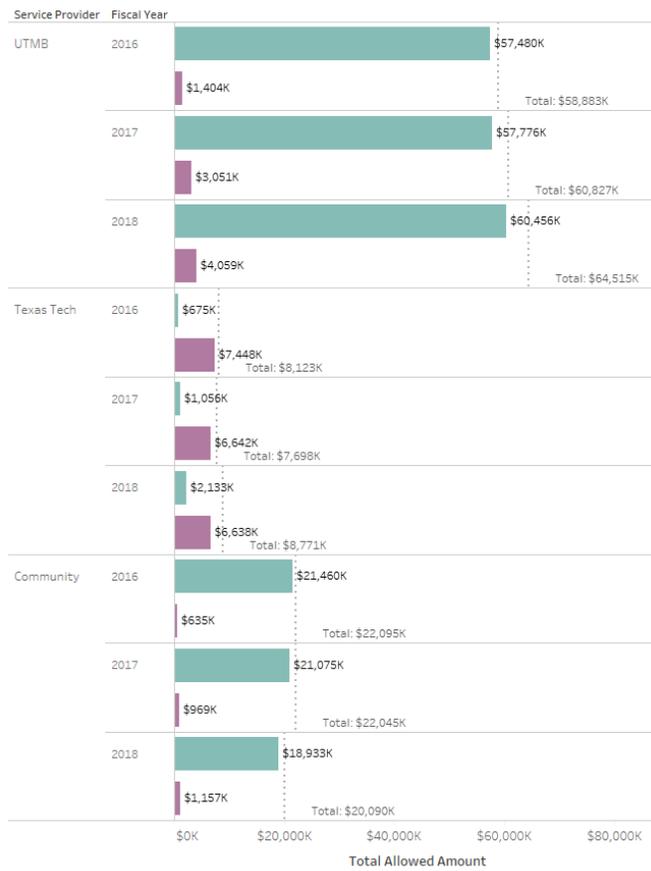
All

TDCJ

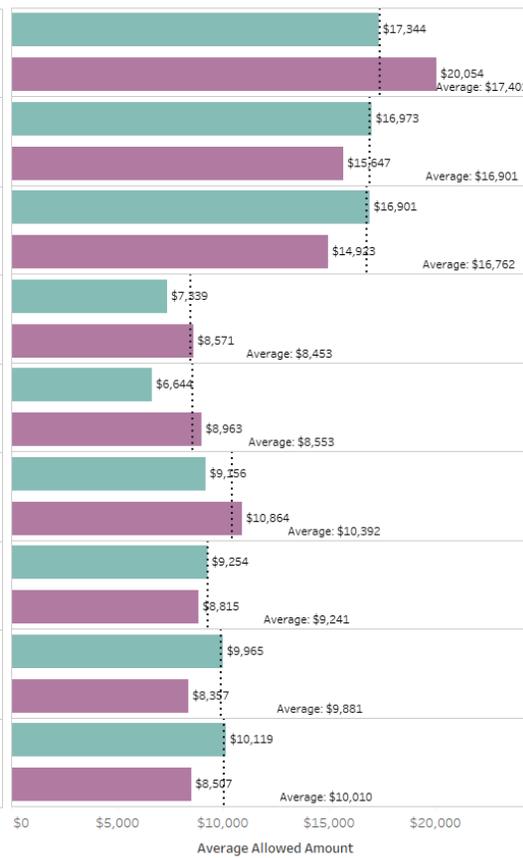
- UTMB District
- Texas Tech District



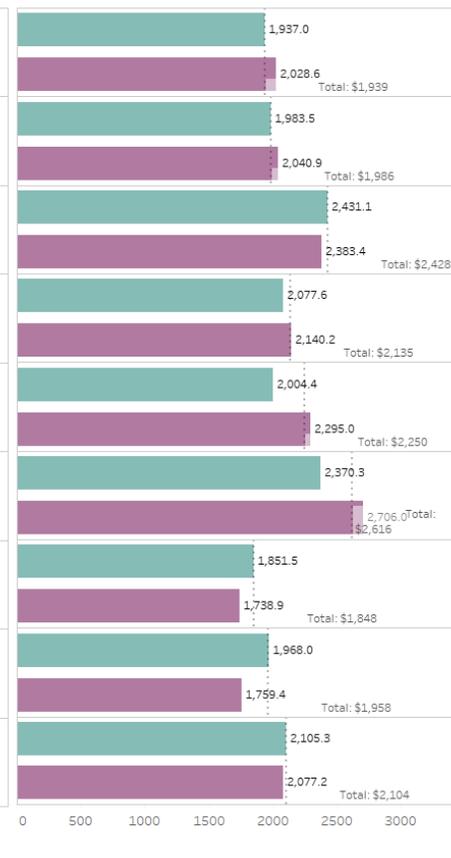
Total Allowed Amount for Inpatient



Average Allowed Amount Per Inpatient



Allowed Amount Per Inpatient Day

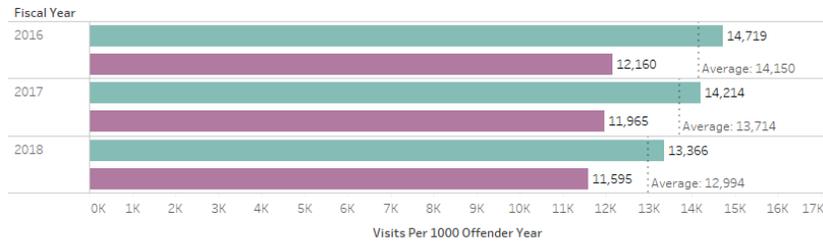


TDCJ Portal – Pearl® Utilization

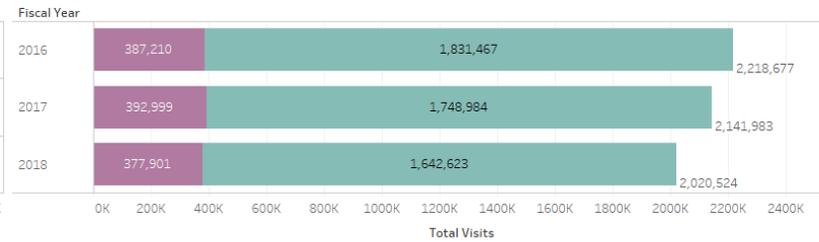
TDCJ
 ■ UTMB District
 ■ Texas Tech District



Prison Health Visits Per 1000 Offender Year



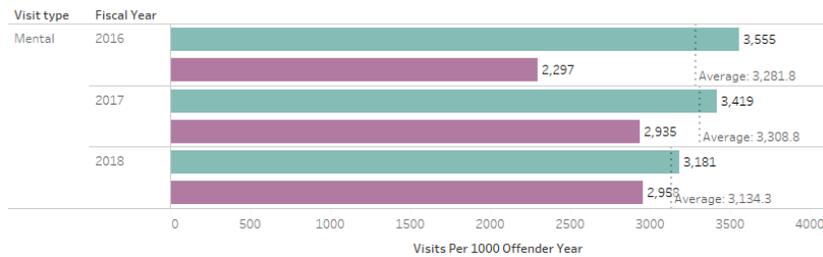
Total Prison Health Visits



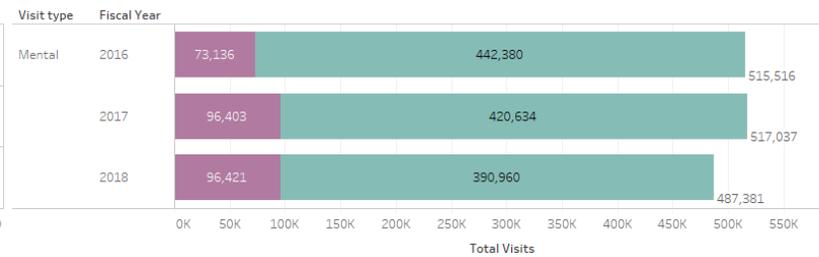
Visit Type

- ADS
- Dental
- Medical
- Mental
- Nursing
- Rehab
- TeleHealth

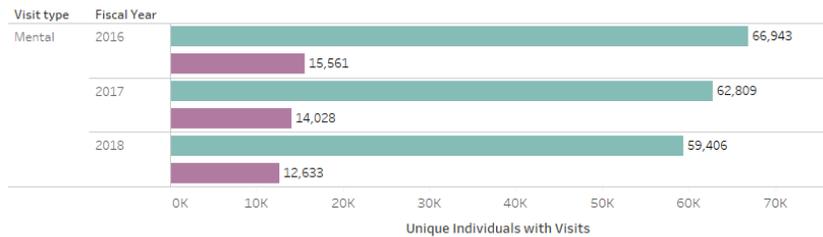
Mental Visits Per 1000 Offender Year



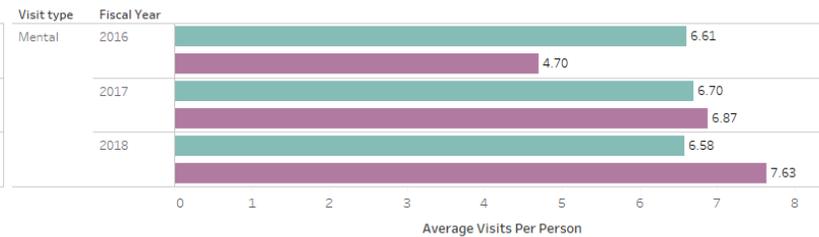
Total Mental Visits



Unique Individuals with Mental Visits



Average Mental Visits Per Person with Mental Visits



TDCJ Portal – Condition Demographics

Condition

- Cancer
- Chronic Kidney Disease
- Congestive Heart Failure
- Diabetes
- HIV
- Serious Mental Illnesses

Select Conditions Metric

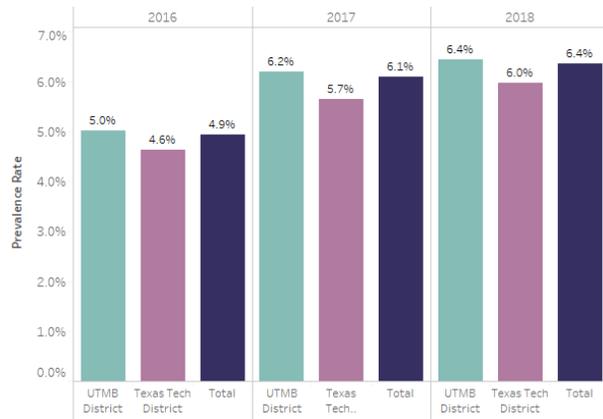
- Unique Count
- Offender Year

TDCJ

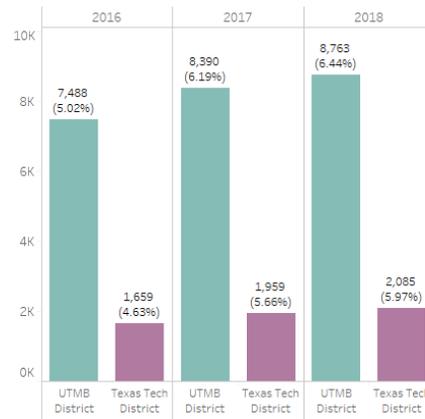
- UTMB District
- Texas Tech District
- Total



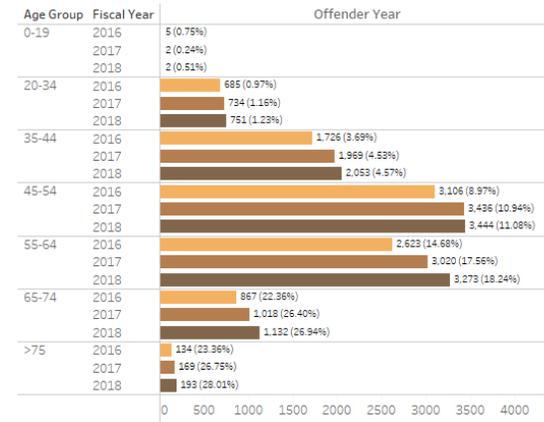
Prevalence Rate for Diabetes



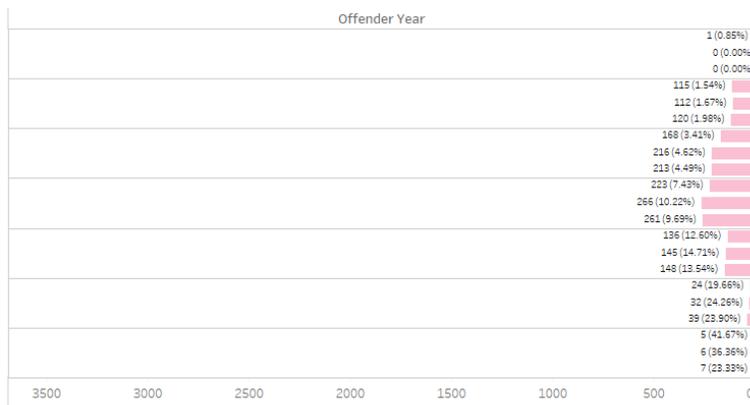
Offender Year for Diabetes



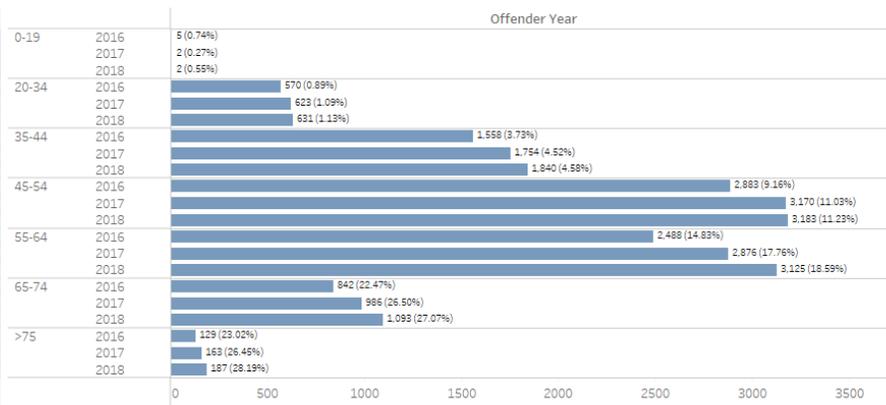
Offender Year for Diabetes by Age Group



Female



Male



TDCJ Portal – Condition Medical Cost

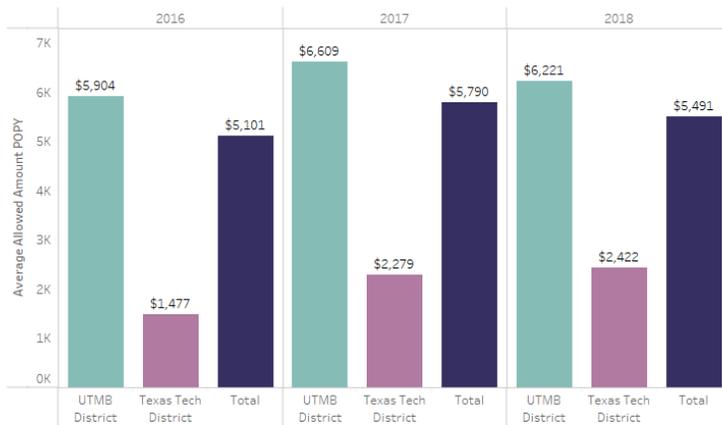
- Condition
- Cancer
 - Chronic Kidney Disease
 - Congestive Heart Failure
 - Diabetes
 - HIV
 - Serious Mental Illnesses

- Select Medical Cost Metric
- Total Allowed Amount
 - Average Allowed Amount POPY

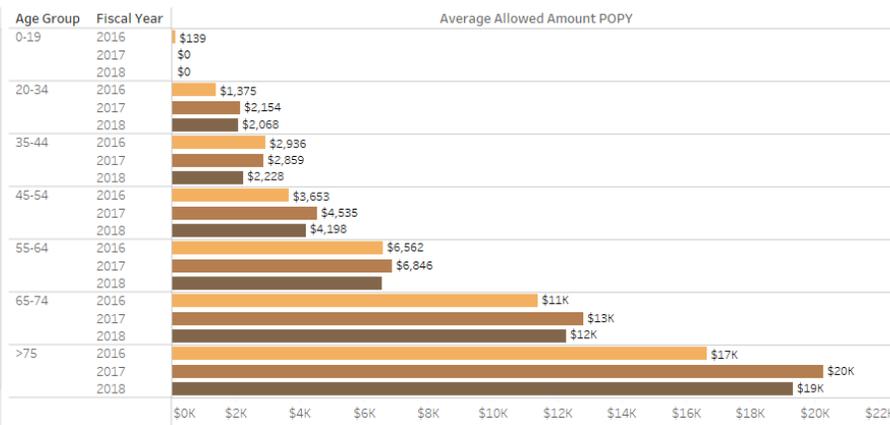
- TDCJ
- UTMB District
 - Texas Tech District
 - Total



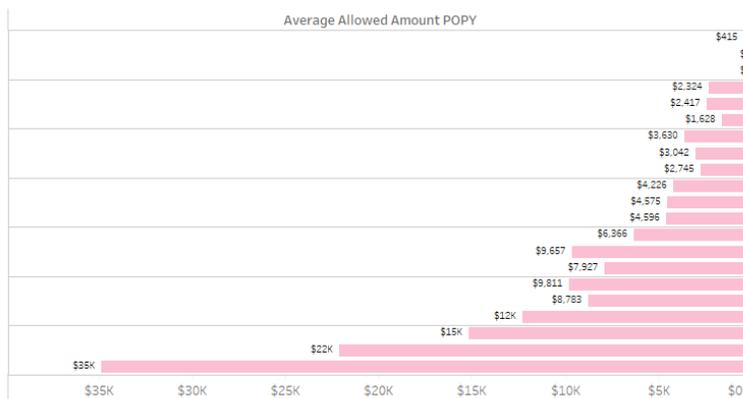
Average Allowed Amount POPY for Diabetes



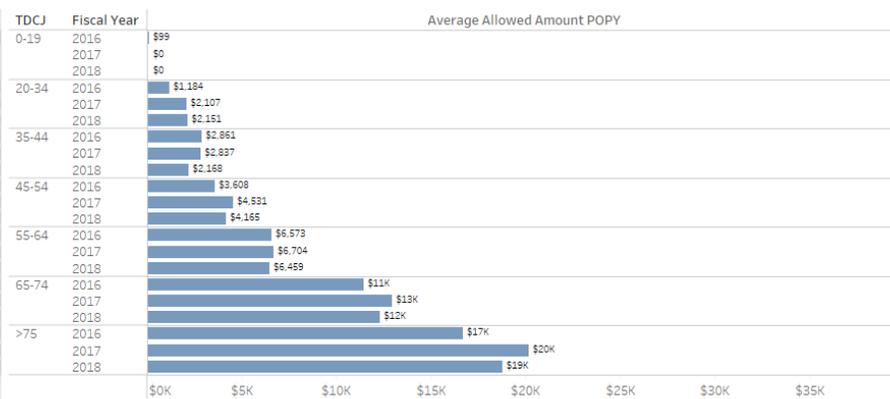
By Age Group



Female



Male



TDCJ Portal – Condition Utilization

Condition

- Cancer
- Chronic Kidney Disease
- Congestive Heart Failure
- Diabetes
- HIV
- Serious Mental Illnesses

Admit Type

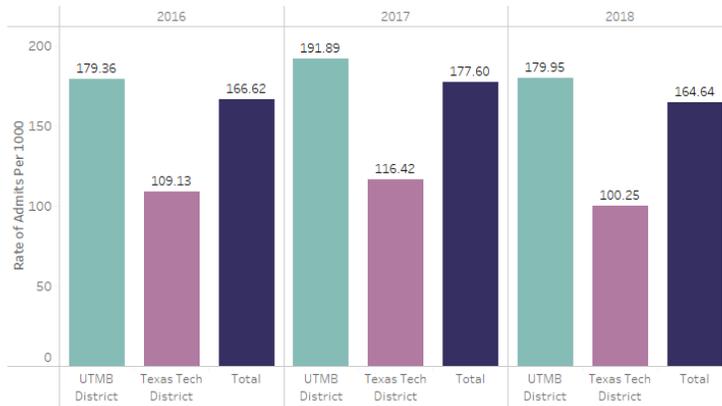
- Acute Inpatient Admits
- Emergency Visits
- Emergency Visits with no Inpatient Admission
- Readmits Within 30 Days

TDCJ

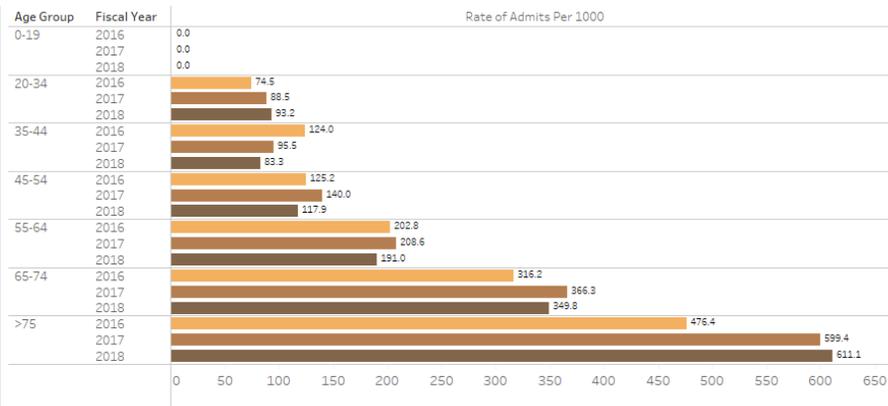
- UTMB District
- Texas Tech District
- Total



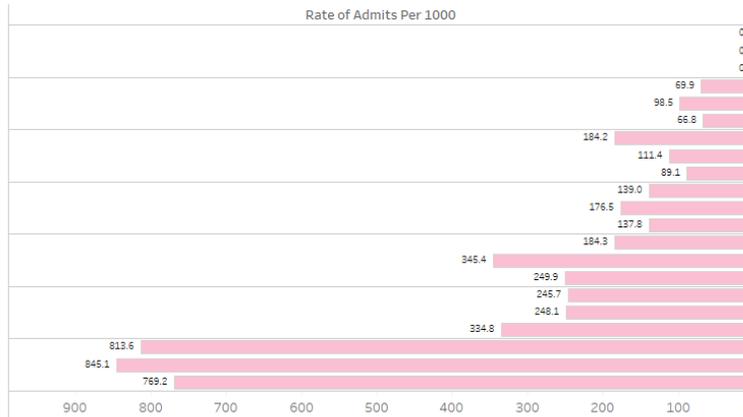
Rate of Admits Per 1000 for Diabetes



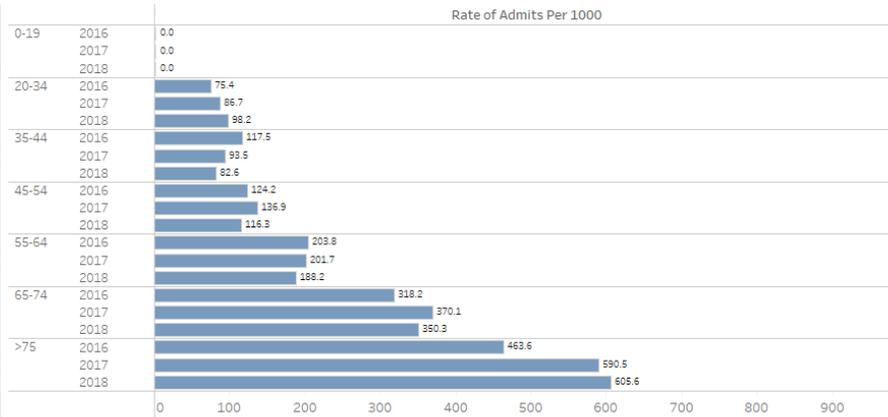
By Age Group



Female



Male

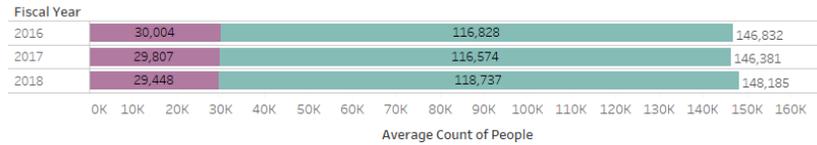


TDCJ Portal – Vendor Report

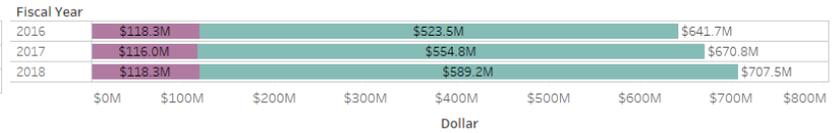
TDCJ
 ■ UTMB
 ■ Ttech
 ■ Combined



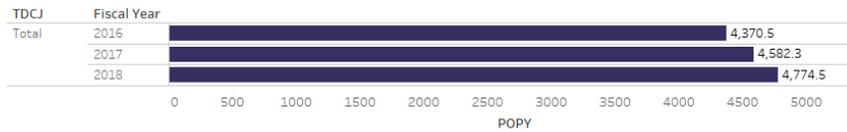
Service Population



Total Expenditures



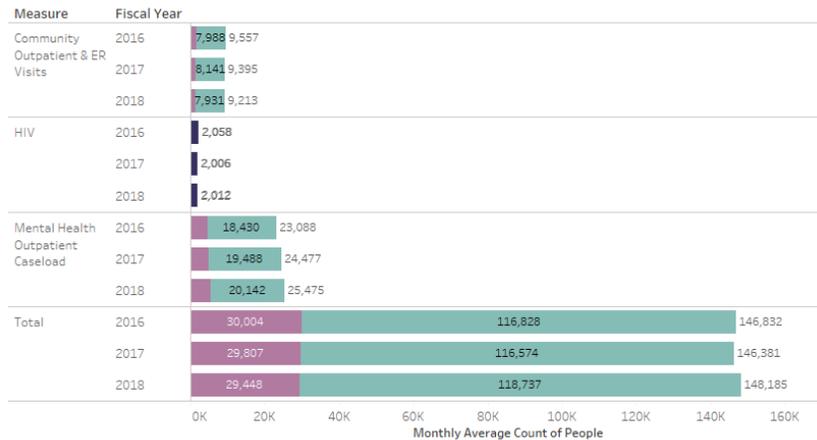
Rate



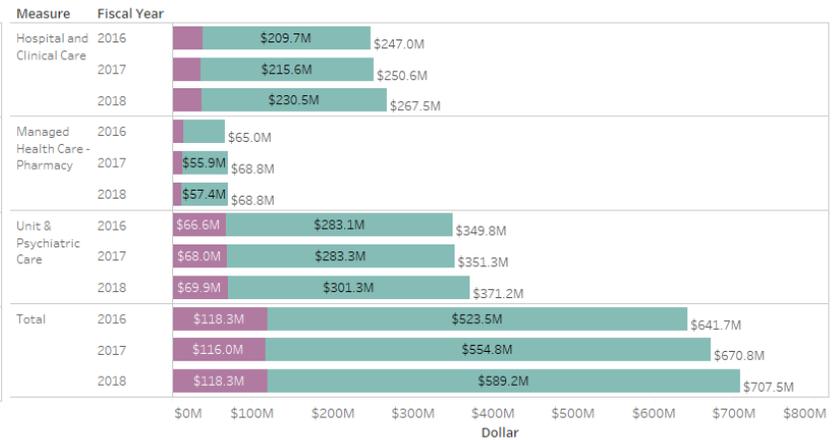
Total Service Population Measure
All

Total Expenditures Measure
All

Total Service Population By Measure



Total Expenditures By Measure



TRS Portal – Enrollment

Select Metric

- Unique Count
- Member Year

Employee Enrollment Status

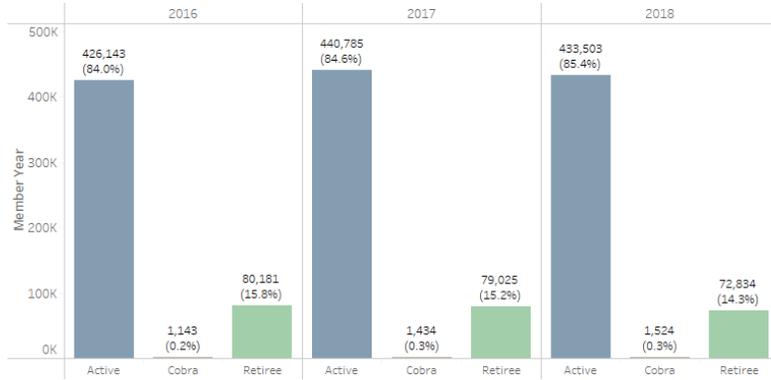
- Active
- Cobra
- Retiree

Self/Dependent Enrollment Status

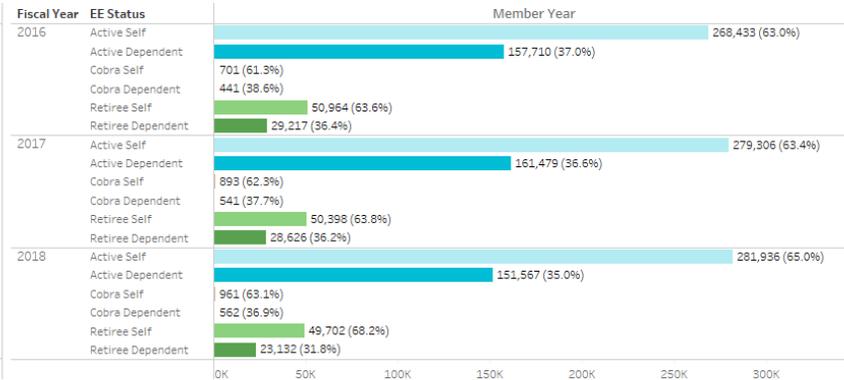
- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent



Member Year



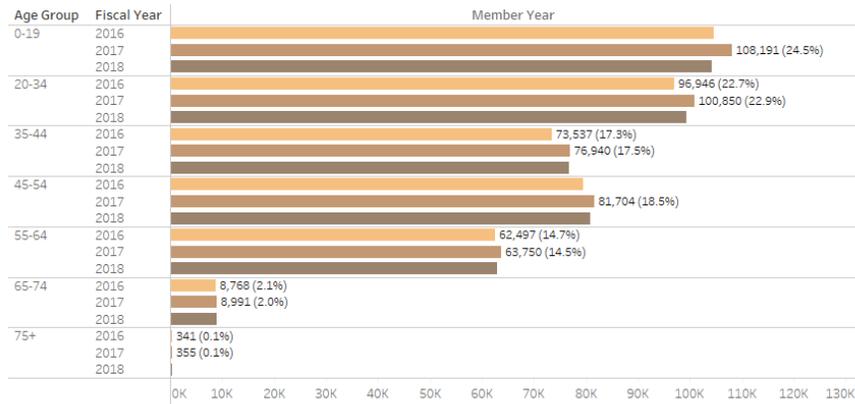
Member Year



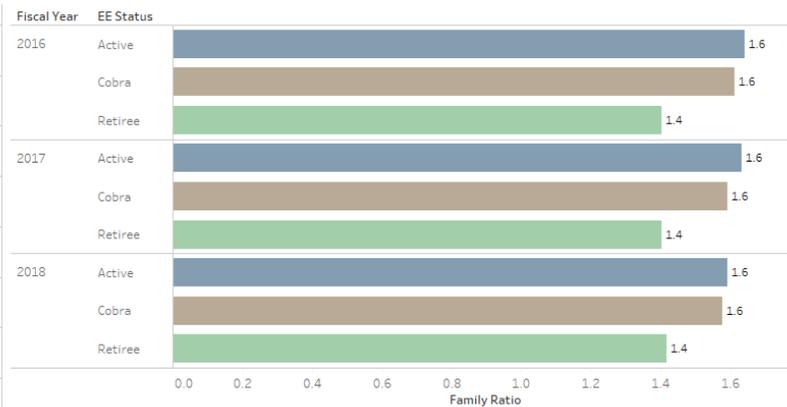
Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Member Year by Age Group



Family Ratio



TRS Portal – Claims / Encounters

Select Claims Metric

- Total Medical Claims Count
- Average Medical Claims Count
- Total Rx Scripts Count
- Average Rx Scripts Count

Employee Enrollment Status

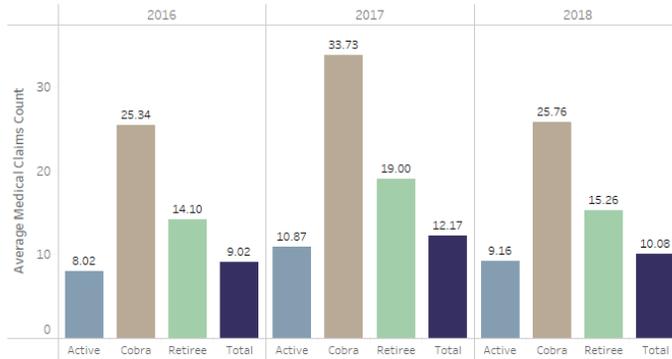
- Active
- Cobra
- Retiree
- Total

Self/Dependent Enrollment Status

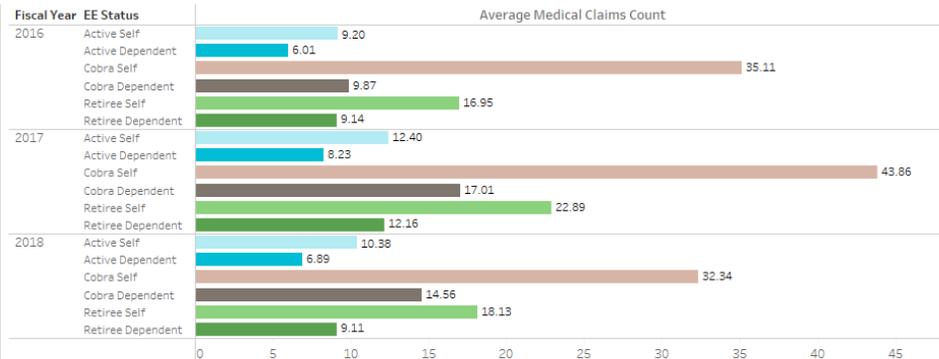
- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent



Average Medical Claims Count



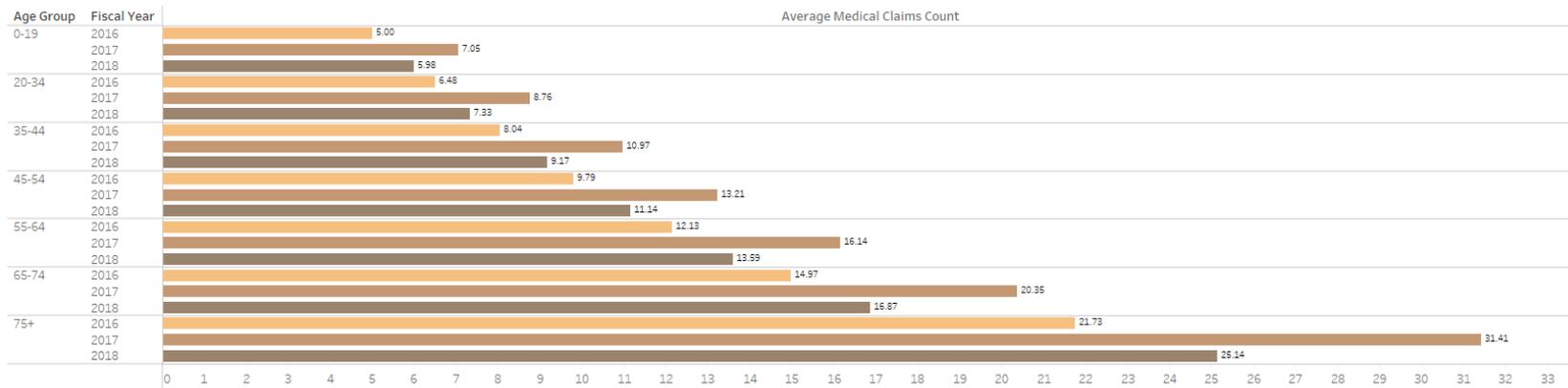
Average Medical Claims Count



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

By Age Group



TRS Portal – Expenditures



Select Cost Metric

- Total Allowed Amount Medical
- Average Total Medical Cost PMPY
- Total Rx Cost
- Average Rx Cost PMPY
- Total Cost (Medical and Rx)
- Average Total Cost PMPY (Medical and Rx)

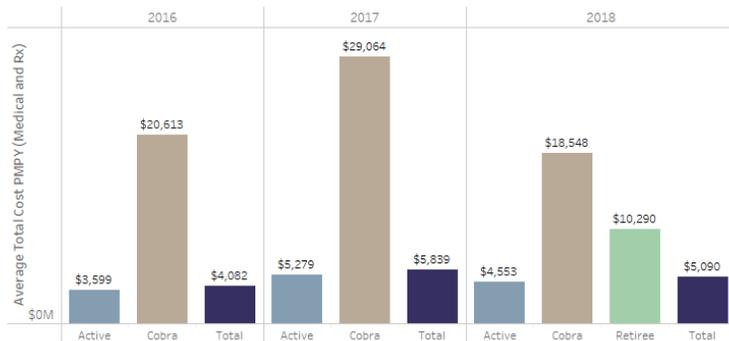
Employee Enrollment Status

- Active
- Cobra
- Retiree
- Total

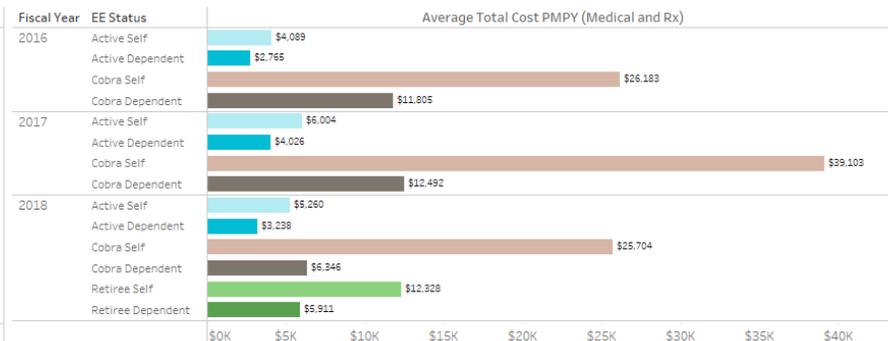
Self/Dependent Enrollment Status

- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent

Average Total Cost PMPY (Medical and Rx)



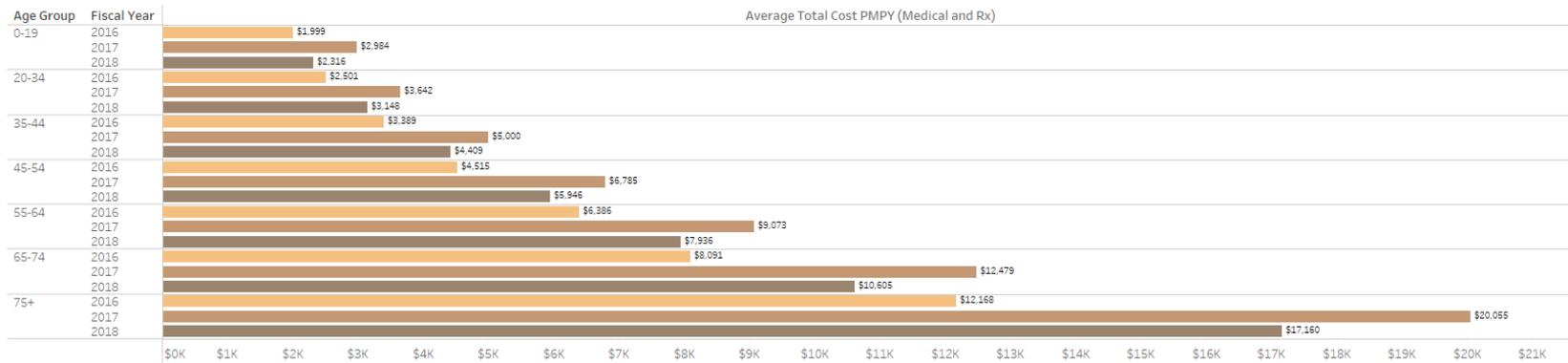
Average Total Cost PMPY (Medical and Rx)



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

By Age Group



TRS Portal – Active Benchmark Cost

■ Average Total Cost Medical PMPY
■ Average Total Cost Medical PMPY Benchmark

■ Average Total Cost Rx PMPY
■ Average Total Cost Rx PMPY Benchmark

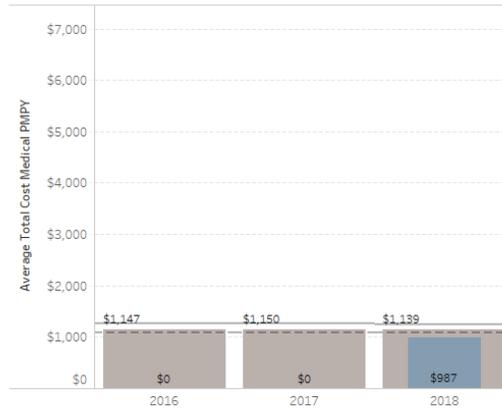
■ Average Total Cost PMPY
■ Average Total Cost PMPY Benchmark



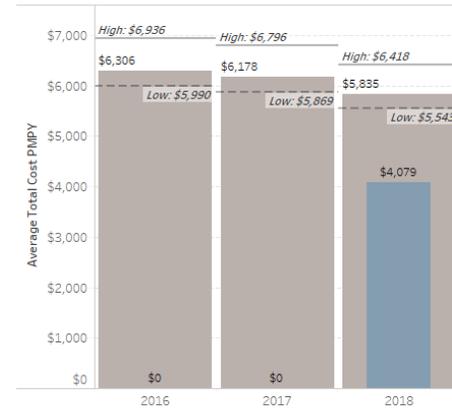
Average Total Cost Medical PMPY



Average Total Cost Rx PMPY



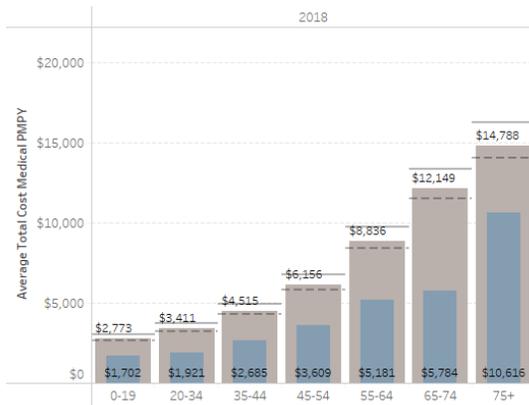
Average Total Cost PMPY



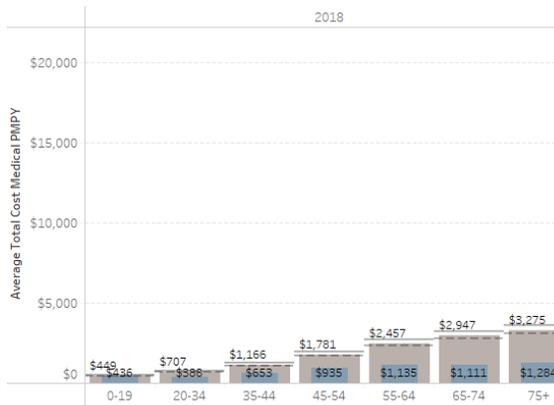
Fiscal Year

- 2016
- 2017
- 2018

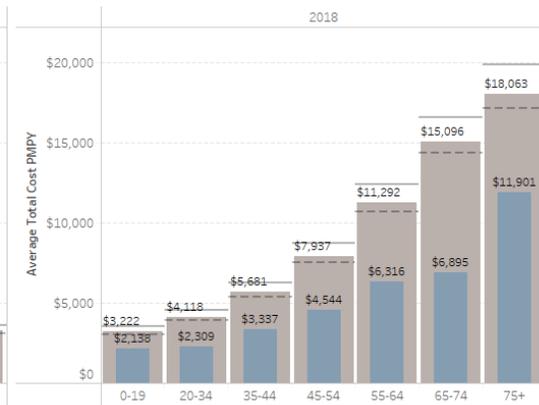
Average Total Cost Medical PMPY by Age Group



Average Total Cost Rx PMPY by Age Group



Average Total Cost PMPY by Age Group



TRS Portal – High Cost Claimants

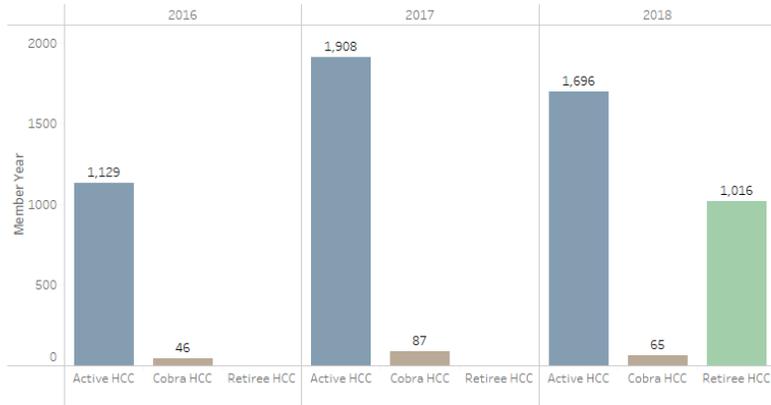
High Cost Claimants with with PMPY >=\$100,000

Employee Enrollment Status
 Active HCC
 Cobra HCC
 Retiree HCC

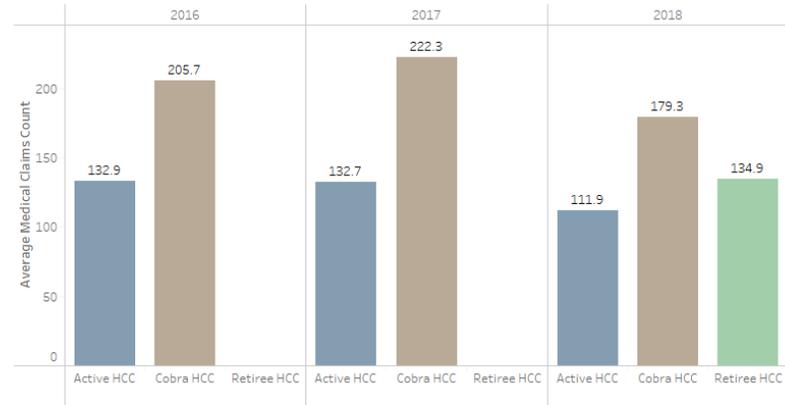
Select Claims Metric
 Total Medical Claims Count
 Average Medical Claims Count
 Total Rx Scripts Count
 Average Rx Scripts Count



Unique Count



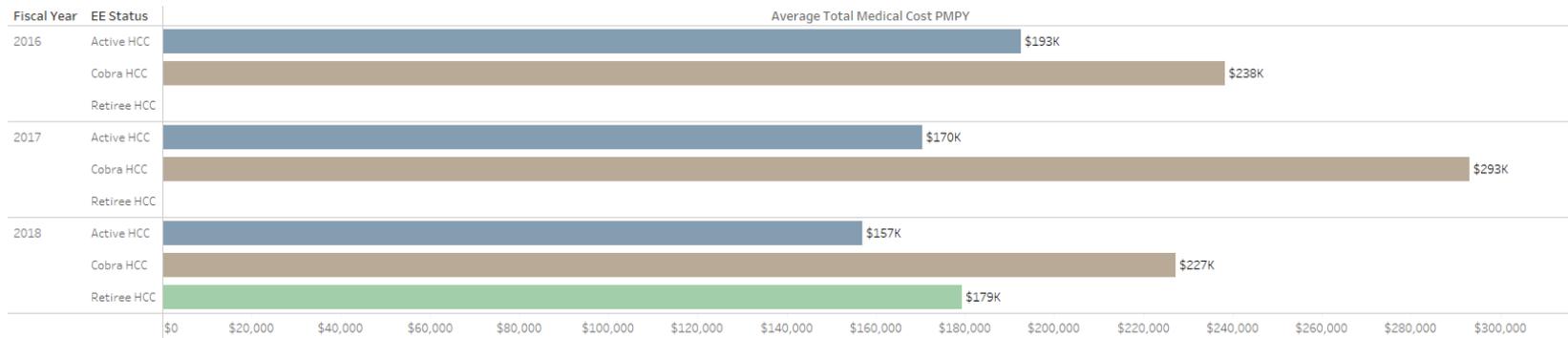
Average Medical Claims Count



Select Cost Metric

Average Total Medical Cost PMPY
 Average Rx Cost PMPY
 Average Total Cost PMPY (Medical and Rx)

Average Total Medical Cost PMPY



TRS Portal – Utilization

Admission/Visit Type

- ED Visits
- Acute Hospital Admission
- Acute Hospital 30 Day Readmission

Select Utilization Metric

- Rate
- Count of Admissions/Visits

Employee Enrollment Status

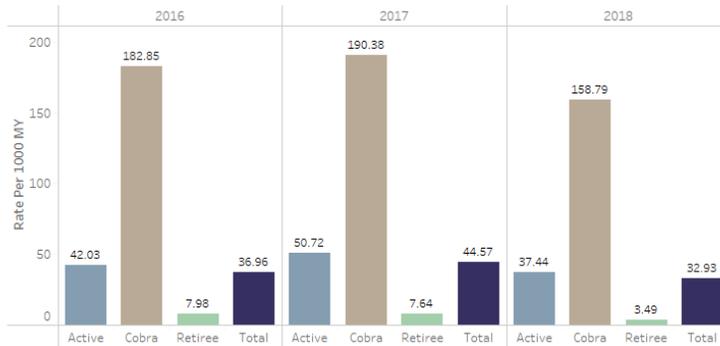
- Active
- Cobra
- Retiree
- Total

Self/Dependent Enrollment Status

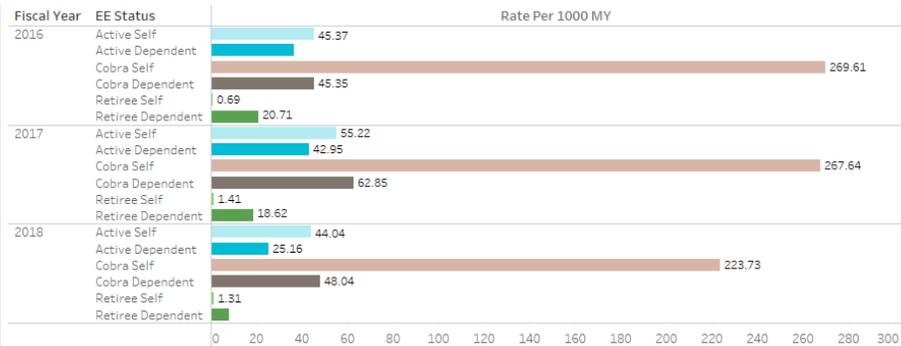
- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent



Acute Hospital Admission: Rate Per 1000 MY



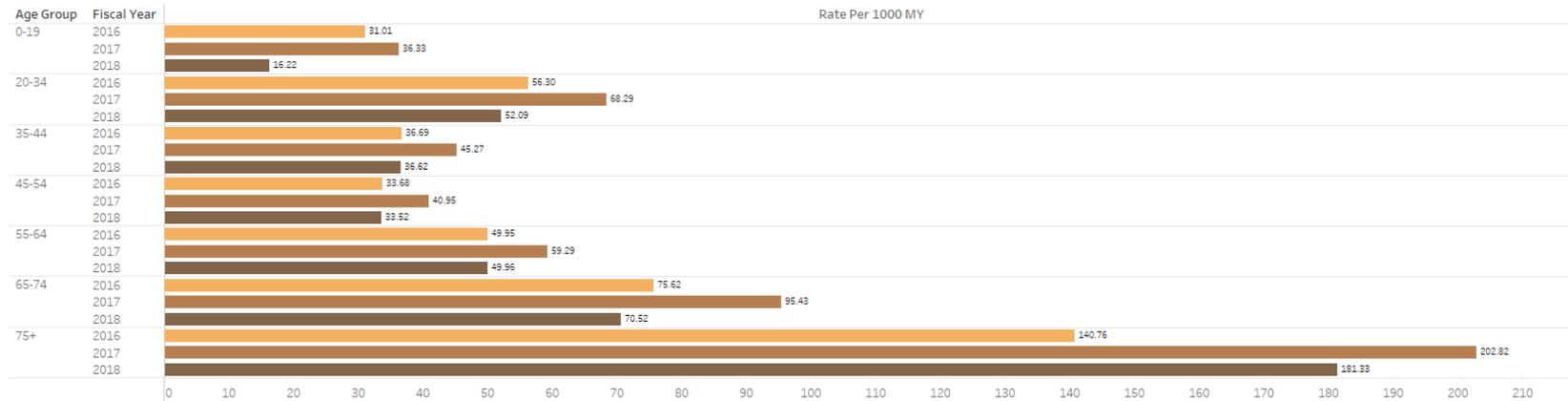
Rate Per 1000 MY



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

By Age Group



TRS Portal – Active Benchmark Utilization

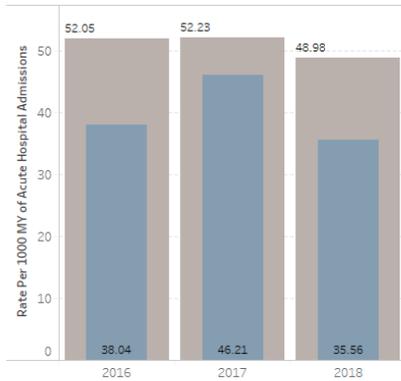
■ Rate Per 1000 MY of Acute Hospital Admissions
 ■ Rate Per 1000 MY of Acute Hospital Admissions Benchmark

■ Rate Per 1000 MY of Emergency Visits
 ■ Rate Per 1000 MY of Emergency Visits Benchmark

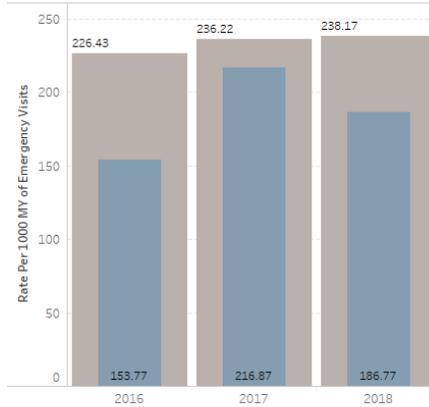
■ Rate Percent for Acute Hospital 30 Day Readmissions
 ■ Rate Percent for Acute Hospital 30 Day Readmissions Benchmark



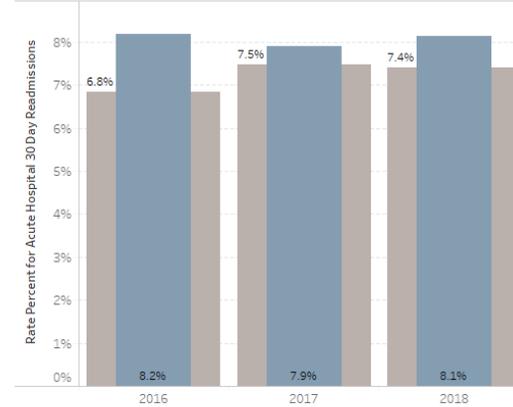
Rate Per 1000 MY of Acute Hospital Admissions



Rate Per 1000 MY of Emergency Visits



Rate Percent for Acute Hospital 30 Day Readmissions



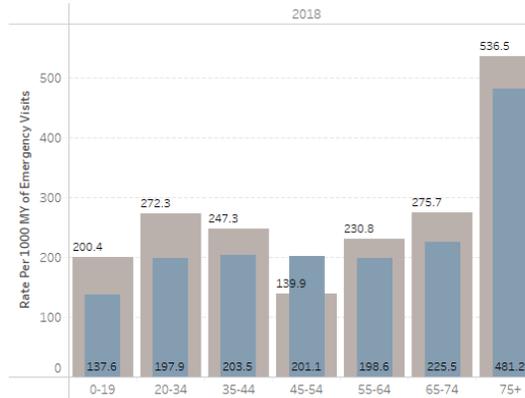
Fiscal Year

- 2016
- 2017
- 2018

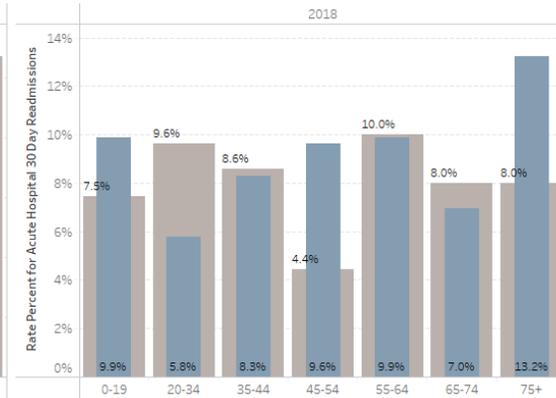
Rate Per 1000 MY of Acute Hospital Admissions



Rate Per 1000 MY of Emergency Visits



Rate Percent for Acute Hospital 30 Day Readmissions



TRS Portal – Utilization Cost

Admission/Visit Type
 ED Visits
 Acute Hospital Admission

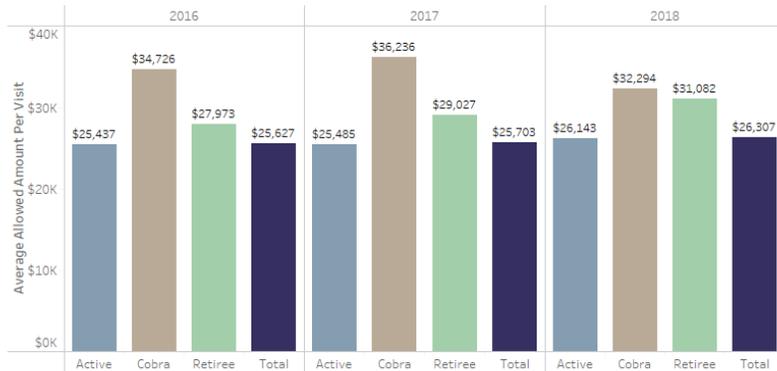
Select Utilization Cost Metric
 Total Allowed Amount
 Average Allowed Amount Per Visit

Employee Enrollment Status
 Active
 Cobra
 Retiree
 Total

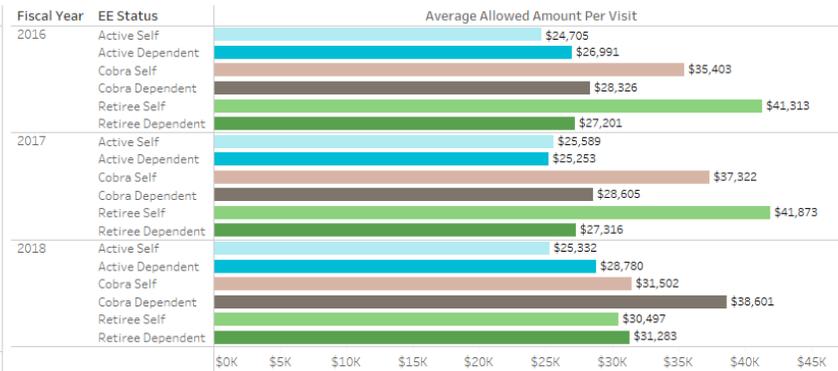
Self/Dependent Enrollment Status
 Active Self
 Active Dependent
 Cobra Self
 Cobra Dependent
 Retiree Self
 Retiree Dependent



Acute Hospital Admission: Average Allowed Amount Per Visit



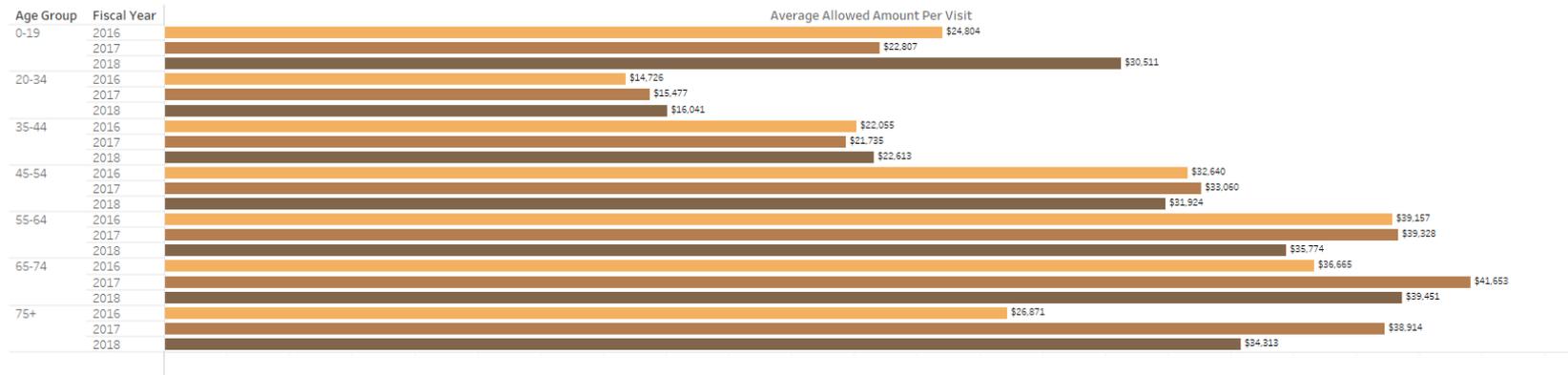
Acute Hospital Admission: Average Allowed Amount Per Visit



Employee Enrollment Status

Active
 Cobra
 Retiree

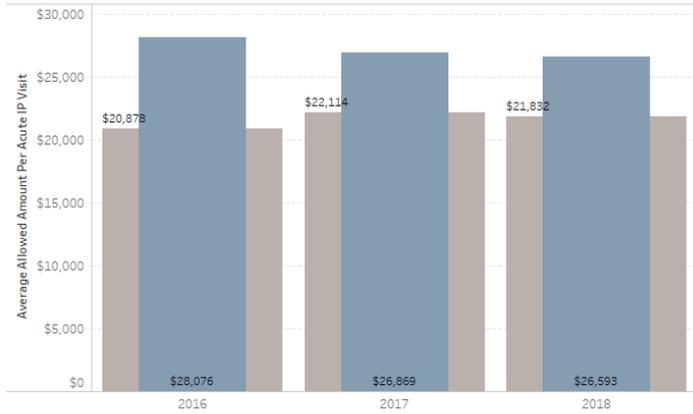
By Age Group



TRS Portal – Active Benchmark Utilization Cost

■ Average Allowed Amount Per Acute IP Visit
■ Average Allowed Amount Per Acute IP Visit Benchmark

Average Allowed Amount Per Acute IP Visit (Facility + Professional)

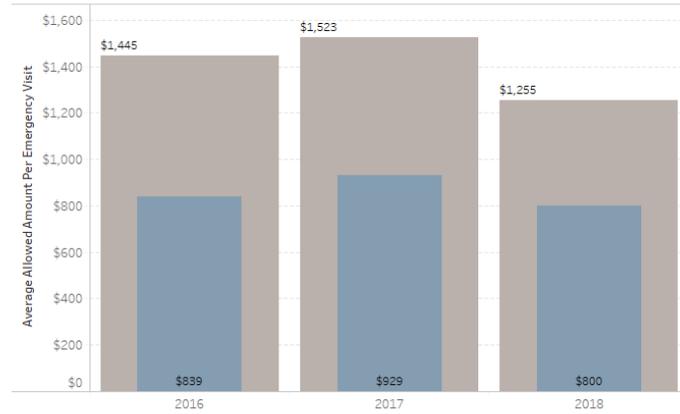


Fiscal Year
○ 2016
○ 2017
● 2018

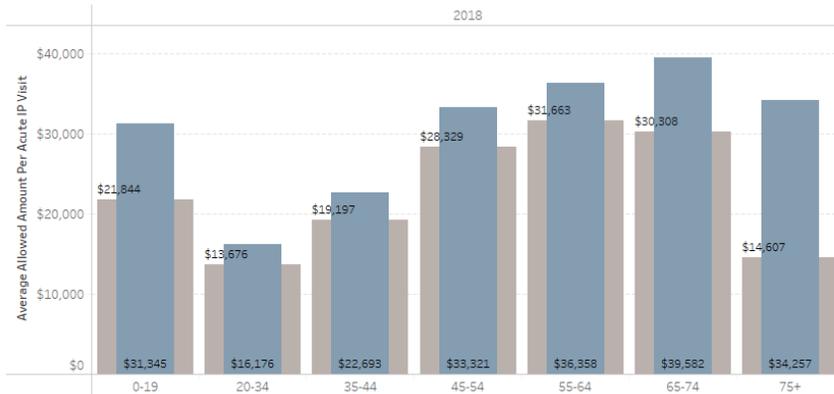


■ Average Allowed Amount Per Emergency Visit
■ Average Allowed Amount Per Emergency Visit Benchmark

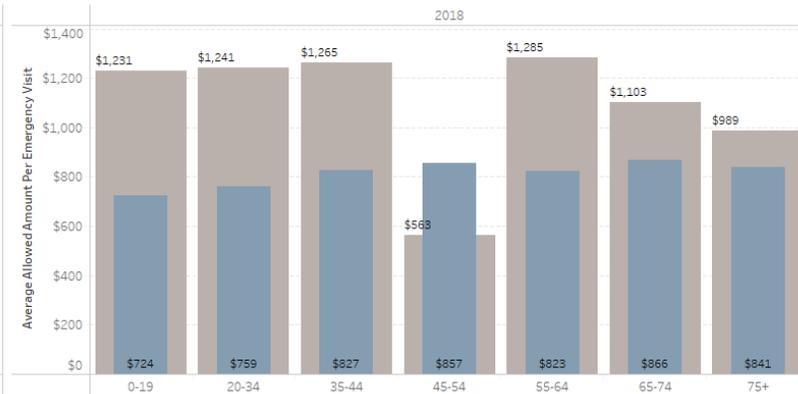
Average Allowed Amount Per Emergency Visit (Facility + Professional)



Average Allowed Amount Per Acute IP Visit (Facility + Professional)



Average Allowed Amount Per Emergency Visit (Facility + Professional)



TRS Portal – Condition Demographics

Condition
Diabetes

Select Condition Metric

- Unique Count
- Member Year

Employee Enrollment Status

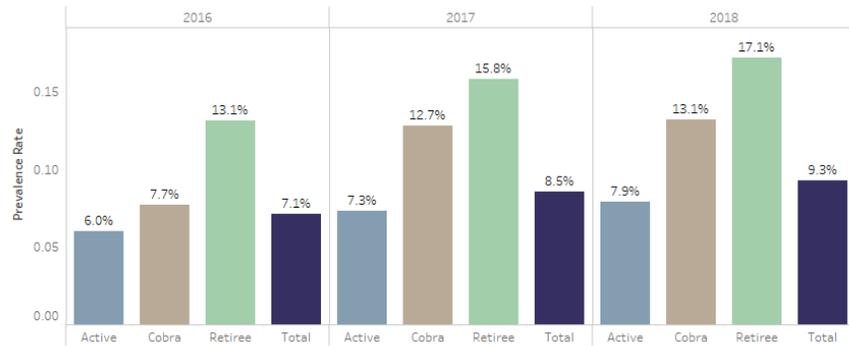
- Active
- Cobra
- Retiree
- Total

Self/Dependent Enrollment Status

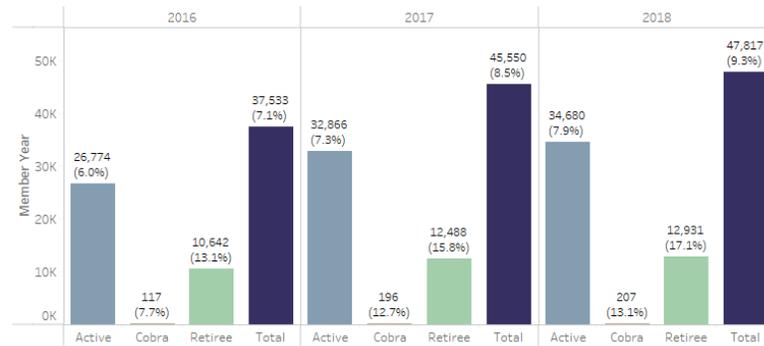
- Active Self
- Active Dependent
- Cobra Self
- Cobra Dependent
- Retiree Self
- Retiree Dependent



Prevalence Rate for Diabetes



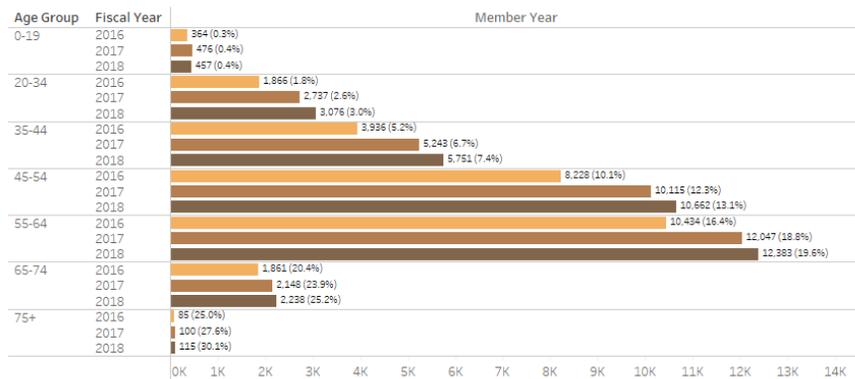
Member Year for Diabetes



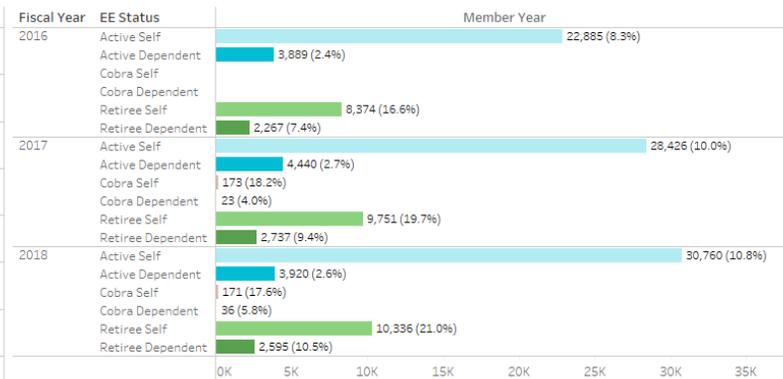
Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Member Year for Diabetes by Age Group



Member Year for Diabetes



TRS Portal – Condition Cost

Condition
Diabetes

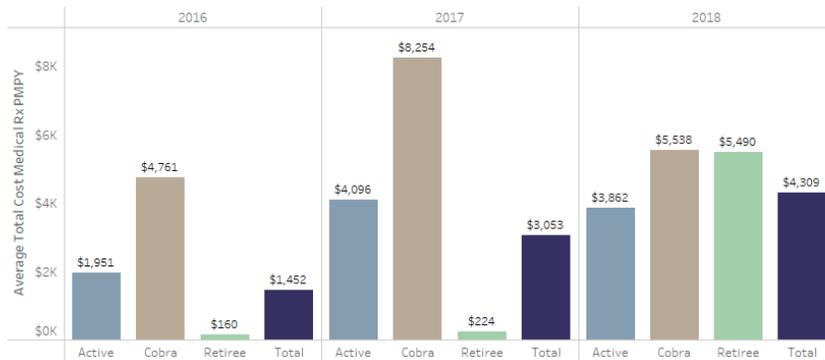
- Select Condition Cost Metric
- Average Total Cost Medical PMPY
 - Average Cost Rx PMPY
 - Average Total Cost Medical Rx PMPY
 - Ratio of Ave Cost PMPY to Ave Total PMPY

- Employee Enrollment Status
- Active
 - Cobra
 - Retiree
 - Total

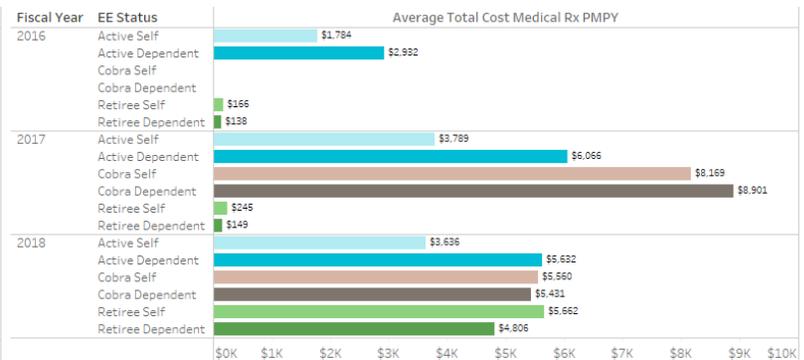
- Self/Dependent Enrollment Status
- Active Self
 - Active Dependent
 - Cobra Self
 - Cobra Dependent
 - Retiree Self
 - Retiree Dependent



Average Total Cost Medical Rx PMPY



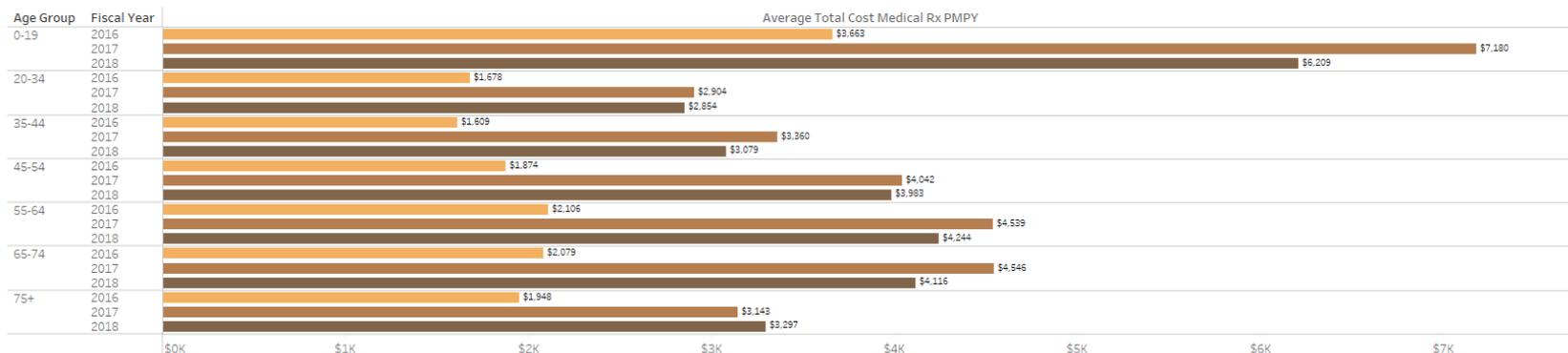
Average Total Cost Medical Rx PMPY



Select Employee Enrollment Status

- Active
- Cobra
- Retiree

Average Total Cost Medical Rx PMPY for Diabetes by Age Group



TRS Portal – Condition Utilization

Condition
Diabetes

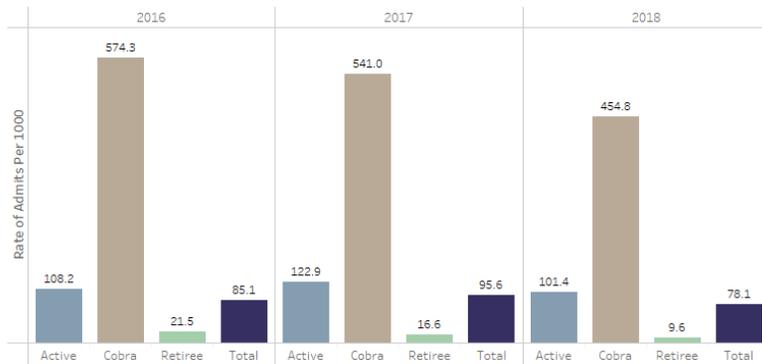
Admit Type
 Acute Inpatient Admits
 Emergency Visits
 Readmits Within 30 Days

Employee Enrollment Status
 Active
 Cobra
 Retiree
 Total

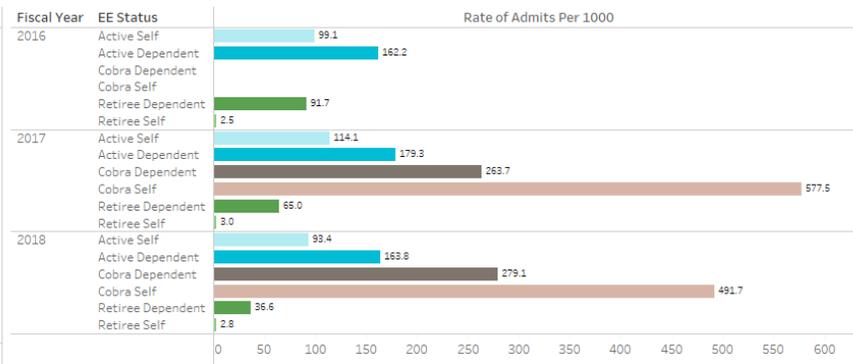
Self/Dependent Enrollment Status
 Active Self
 Active Dependent
 Cobra Dependent
 Cobra Self
 Retiree Dependent
 Retiree Self



Rate of Admits Per 1000 for Diabetes



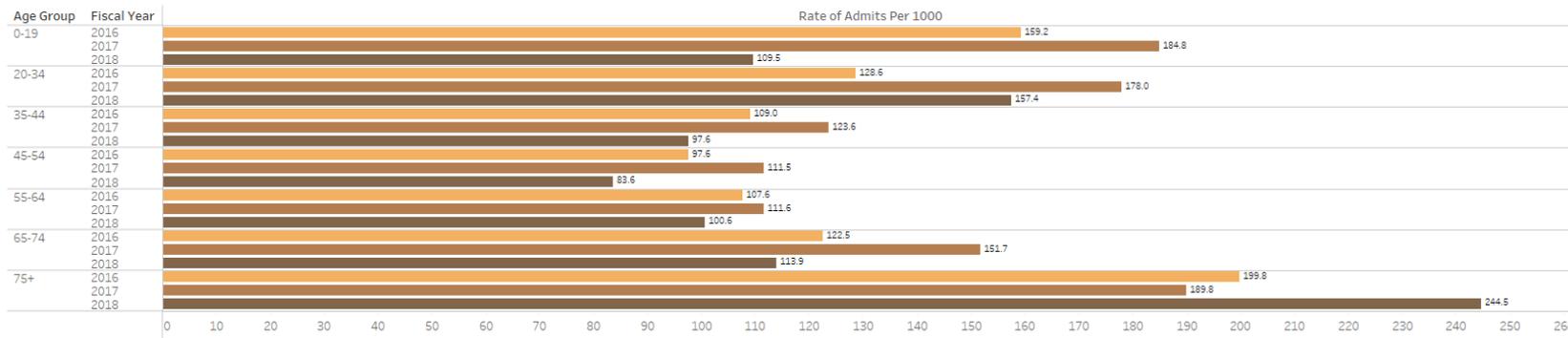
Rate of Admits Per 1000 for Diabetes



Select Employee Enrollment Status

Active
 Cobra
 Retiree

Rate of Admits Per 1000 for Diabetes by Age Group



Appendix G. Data Analysis for Quality Assessments

Data Enhancement

The UTHealth Center for Health Care Data uses sophisticated tools that allow the data to be interpreted across platforms thereby creating opportunities to make the data more conducive to interpretation. For example, additional software will be applied to create additional fields that convert codes to text, such as diagnoses codes to text descriptions. Group diagnostic categories in hierarchical categories and Major Diagnostic Categories (MDCs) will be added. Groupers (software that categorizes data) shall be applied to like procedures as well as to prescription drugs to identify therapeutic categories. Consistent Diagnostic Related Groups (DRGs) in both All Patient Refined (APR) DRGs and Medicare Severity (MS) DRGs will be compiled. The 3M™ Potentially Preventable Events (PPE) software shall be applied to identify potentially preventable events.

Importantly, an elaborate process will be added to link claims and encounters to identify and group claims related to an event or an episode. For example, an Inpatient Event would join all claims related to that event and assign a common and unique admission number, allowing a full view of all combined services (professional and facility) during the hospitalization. In addition, “episodes” are created that link claims to a common episode of care across time. Analyses of episodes can be performed to assess episode-payment options.

Pre-identified markers for common or select disease states and conditions are developed in this phase using validated and commonly accepted methodology. This allows for identification, for example, of all persons with diabetes from the time of initial diagnosis to facilitate key disease-specific analyses.

The application of the Clinical Risk Groups (CRG) risk values to each individual member allows for specific analysis of segments based on risk level. In relation to trend analysis, the risk assessments can be used to predict future costs and utilization. Overall risk value scores per population groups can be compared across and within agencies. Risk adjustment can then be performed to revise expected rates and could ultimately be used for projections.

Expected Rates

In addition to these enhancements to the aggregated plan data, there is an ongoing process to conduct continuous updates and refreshes to a maintained data set that provides expected rates for key metrics. An expected rate is similar to a

benchmark, except that a benchmark is used to mark a desired point of attainment, whereas an expected rate is a point of measurement of common performance based on an average for a given population. Expected rates are useful comparisons of like populations that can be weighted and adjusted to fit the profile of the population being analyzed to display a rate that would be expected given comparable populations.

The expected rate considers the demographics and risk of the population and adjusts observed rates of other plans to reflect the population under study. For example, the expected rate of emergency room visits per 1000 may be somewhat higher for a population where the average age is 49 compared to a population where the average age is 41. Once expected rates are established for a given population, observed rates can then be compared to identify both high performance as well as opportunities for improvement. Thus, a comparison rate for appropriate metrics is computed that indicates an expected level which we would expect to see the plan report. Other considerations that may be included are geographic location of the populations as well as adjustments for differences in plan design.

High Cost Claimants

Special focus will be given to individuals considered High Cost Claimants (HCCs), defined here as claimants with annual medical and pharmacy expenses in excess of \$100,000. Particular attention will be given to the conditions responsible for the high costs and patterns of utilization.

Prevalence Rates

Initial analysis has included prevalence rates for six conditions. Annual prevalence rates report the proportion of persons in the population who have a particular condition in that year. Prevalence rates for additional conditions will be added, with a focus on chronic conditions or conditions with high expenditures. Diagnoses codes are utilized to categorize key health conditions and disease states which are then used to develop prevalence and incidence rates. According to the Centers for Disease Control (CDC), 90% of annual health costs are attributable to persons with chronic conditions or mental illness.⁶ Therefore, it is important to assess population health status, stratified by demographics. Unusual and unexpected prevalence rates

⁶ National Center for Chronic Disease Prevention and Health Promotion, "Health and Economic Costs of Chronic Diseases," <https://www.cdc.gov/chronicdisease/about/costs/index.htm> (accessed June 23, 2020).

will prompt further investigation. Prevalence rates for common conditions and health care episodes shall include, but are not limited to:

- Heart disease
- Cerebrovascular disease
- Diabetes
- Hypertension
- Hyperlipidemia
- Arthritis
- Musculoskeletal conditions
- Chronic Obstructive Pulmonary Disease (COPD) & allied respiratory conditions
- Asthma
- Acute and Chronic Bronchitis
- Emphysema
- Serious mental health conditions
- Pregnancy
- Births
- Addiction

Incidence Rates

Along with prevalence rates, prevalence and, where possible incidence rates shall be computed and presented stratified by group. Incidence rates differ from prevalence as they report the initial occurrence of a condition or event. Per member per year (PMPY) total costs will also be reported by incidence. Incidence rates for non-chronic conditions shall include:

- Immunization rates
- Cancer:
 - ▶ Breast cancer
 - ▶ Colon cancer
 - ▶ Lung cancer
 - ▶ Prostate cancer
 - ▶ Skin cancer
- Depression
- Reproductive health/Pregnancy
- Low birth weight newborns

As noted previously, when an anomaly is identified through condition review, attention and further analysis of that population group follows to target the main cost drivers and opportunities for action.

Utilization of Resources

Rates of utilization by setting are important key metrics to identify trends and cost drivers. Rates are generally reported per 1000 population and will be shown, when applicable, compared with the expected rate, which is adjusted for demographics and risk. Specifically, rates of emergency department visits, acute inpatient admissions and use of specialists can spotlight opportunities for action and cost reduction. These metrics can be reported by population segments or health conditions. Some key utilization rates have been reported with the initial data findings. They will be expanded to include additional resources and settings such as the following:

- Acute inpatient hospitalizations
- Rehabilitation hospitalizations
- Psychiatric hospitalizations
- Substance abuse hospitalizations
- Skilled nursing facility
- Emergency room visits
- Observation stays
- Freestanding emergency room and urgent care visits
- Acute inpatient hospitalization days – length of stay
- Rehabilitation days
- Psychiatric days
- Professional and physician visits
- Prescription Drug use
- Physical Therapy

Utilization of Preventive Services

Preventive services are included within health benefit plans and are highly encouraged as means for screenings and early identification of conditions. The rate of utilization of age and gender appropriate preventive services shall be reported for, but not limited to, the following:

- Physical exam (annual)
- Colorectal cancer screening
- Breast cancer screening

- Cervical cancer screening
- Immunizations (influenza, pneumonia)
- Smoking cessation
- Weight counseling

Pharmacy Utilization

Pharmacy utilization shall be reviewed in greater detail by assessing medication usage and payments by therapeutic categories and classes of medications including, but not limited to, the following with special interest in their relationship to other key measures:

- Antidepressants
- Anti-Anxiety
- Psychotic and Bipolar Disorders
- Cancer drugs (chemotherapy)
- Tobacco Cessation (prescribed)
- Antibiotics
- Specialty drugs and biologics
- Disease modifying therapies

Additionally, the use and cost trend of specialty drugs will be reviewed with attention to a member's co-pay. If indicated, maintenance medication adherence for chronic disease states can be assessed to inform disease management strategies.

Quality Measures

The Healthcare Effectiveness Data and Information Set (HEDIS®) is a set of performance measures used to report on quality in the managed care industry. HEDIS, along with the National Quality Forum (NQF), endorse measures for use with administrative claims and encounters data to report quality metrics, frequency of selected procedures and other key metrics.

Selected measures will be computed and reported as indicated. Variations noted when comparing these results with expected rates can identify possible opportunities to designate centers or providers of excellence for value-based contracting opportunities.

Additionally, the Agency for Healthcare Research and Quality's (AHRQ) Quality Indicators™ measures will be derived for each agency. The AHRQ indicators include the following:

- **Prevention Quality Indicators (PQIs):** AHRQ identifies ambulatory care sensitive conditions, defined as 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;
- **Inpatient Quality Indicators (IQIs):** These indicators reflect quality of care inside hospitals and include: inpatient mortality; utilization of procedures for which there are questions of overuse, underuse, or misuse; and procedures for which there is evidence that a higher volume is associated with lower mortality;
- **Patient Safety Indicators (PSIs):** These indicators focus on potentially preventable instances of complications and other iatrogenic events resulting from exposure to the health care system; and
- **Pediatric Quality Indicators (PDIs):** These indicators reflect the quality of care for children and neonates inside hospitals (provider-level indicators) and identify potentially avoidable hospitalizations among children (area-level indicators).

Specific Procedures or Events

An analysis of specific procedures or health events may also be conducted to identify unexpected rates, trends, costs, or inappropriate utilization. Some examples include, but are not limited to, the following:

- Cesarean section (C-Section) rates and outcomes
- Pregnancy outcomes
- Neonatal Intensive Care Unit (NICU) admission rate
- Cancer treatment and providers, centers of excellence
- Hip replacement
- Knee replacement
- Magnetic Resonance Imaging (MRI)
- Coronary Artery Bypass Grafting (CABG)
- Cardiac catheterization
- Back surgeries
- Overuse of antibiotics

Appropriateness

Other financial metrics will include indicators of provider network adequacy and assessment of out-of-network utilization. For example, an evaluation of “surprise billing” from non-network providers seen in the emergency room or for anesthesia could be conducted to assess the impact to members. Additionally, overpayment analyses can include reviewing payments made for claims in excess of billed charges.