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REPORT

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External Evaluation of the Texas Child Mental Health Care Consortium

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Key Terms

This section provides definitions for tables and figures included in the report.

Metric Definitions for Tables and Figures:

- **Fiscal Year (FY) 2021:** September 1, 2020 – August 31, 2021
- **Fiscal Year (FY) 2022:** September 1, 2021 – August 31, 2022
- **Fiscal Year (FY) 2023:** September 1, 2022 – August 31, 2023
- **HRI:** Health-related institution (HRI) responsible for providing CPAN and TCHAT services. The following acronyms are used in this report to reference the health-related institutions:
 - BCM: Baylor College of Medicine
 - TAMUHSC: Texas A&M University / Baylor Scott and White
 - TTUHSC: Texas Tech University Health Science Center
 - TTUHCSEP: Texas Tech University Health Science Center at El Paso
 - UNTHSC: University of North Texas Health Science Center at Fort Worth
 - UTDell: Dell Medical School at the University of Texas at Austin
 - UTHSCH: University of Texas Health Science Center at Houston
 - UTHSCSA: University of Texas Health Science Center at San Antonio
 - UTHSCT: University of Texas Health Science Center at Tyler
 - UTMB: University of Texas Medical Branch at Galveston
 - UTRGV: University of Texas Rio Grande Valley
 - UTSW: University of Texas Southwestern Medical Center
- **Childhood Opportunity Index 2.0 (COI):** This measure comprises 29 childhood indicators of health and economic outcomes across three domains (education, health and environment, social and economic) with higher numbers indicating greater neighborhood opportunity. Detailed description of the COI 2.0 methodology is provided in the *Child Opportunity Index 2.0: Technical Documentation*. January 15, 2020. By Clemens Noelke, Nancy McArdle, Mikyung Baek, Nick Huntington, Rebecca Huber, Erin Hardy, Dolores Acevedo-Garcia Accessed at [ddk_coi2.0_technical_documentation_20200212.pdf \(diversitydatakids.org\)](https://diversitydatakids.org/data/coi20200212/ddk_coi2.0_technical_documentation_20200212.pdf). highest opportunity refers to greater vulnerability
- **Rural-Urban Commuting Area Codes (RUCA):** RUCA is a census tract-based classification developed by U.S. Department of Agriculture that uses standard census measures of population density, urbanization, and daily commuting to characterize all U.S. census tracts with respect to their rural/urban status and commuting relationships to other census tracts. The codes provided in this report are based on 2010 RUCA codes, the most-recent version available. Census tracts are classified as follows: Urban (RUCA codes 1-3), Large Town (RUCA codes 4-6), Small Town (RUCA codes 7-9), and Completely Rural (RUCA code 10).

CPAN-Specific Definitions for Tables and Figures:

- **Clinic Type:** Clinic classification in Trayt (Family Medicine, Pediatrics, Integrated, or Other).

- **Enrolled Clinic:** Any unique clinic identified in the Trayt Clinic Directory database with an “Active” account status and a “Signed” agreement status.
- **Enrolled Clinic Staff (Providers):** Any provider or clinic staff with an “Active” or “Active-No clinic” clinic staff account status in the Trayt Clinic Directory database.
- **CPAN Reach:** The absolute number and proportion of providers and clinics enrolled in the CPAN network.
- **CPAN Participants Served:** The absolute number and proportion of provider mental health consultation sessions completed for a pediatric patient.
- **CPAN Call/Consult:** A completed provider mental health consultation session with HRI staff for a pediatric patient.

TCHATTT-Specific Definitions for Tables and Figures:

- **Enrolled Campus:** Any campus in the internal evaluation team’s list of Texas Education Agency (TEA) campuses whose district has an “active” MOU status.
- **Student Referral:** Referral made by school TCHATTT liaison to HRI.

EXECUTIVE SUMMARY

The External Evaluation was initiated in September 2020 to evaluate the Texas Child Psychiatry Access Network (CPAN), Texas Child Access Through Telemedicine (TCHAT), and the Child Psychiatry Workforce Expansion (CPWE) programs. These initiatives were established and funded by the 86th Texas Legislature as part of the Texas Child Mental Health Care Consortium (TCMHCC) to expand access to mental health services for Texas youth. This fiscal year (FY) 2023 External Evaluation Report provides an examination of CPAN and TCHAT program reach and services delivered (through analysis of the TCMHCC Trayt-based data management system) for all fiscal years up through the end of FY 2023 (May 1, 2020 – August 31, 2023), and it reports findings from the external evaluation cost analysis of CPAN and TCHAT programs for FY 2023 (September 1, 2022 – August 31, 2023). The report aims to offer insights to the TCMHCC, program directors, and implementers within each HRI to further their goals of enhancing mental health care for children and adolescents in Texas.

The FY 2023 external evaluation report includes two parts. **Part 1** focused on CPAN, TCHAT and CPWE program implementation and process evaluation results based on External Evaluation survey and interview data. **Part 2** focuses on:

- 1) **An examination of CPAN and TCHAT program reach and services delivered (through secondary analysis of the TCMHCC Trayt-based data management system); and**
- 2) **Cost analysis of CPAN and TCHAT using the Time-Driven Activity-Based Costing (TDABC) model, including implementation costs associated with CPAN and TCHAT for each HRI.**

CPAN Trayt Data

Key Findings

The CPAN process and outcome external evaluation focuses on: (1) CPAN clinic/provider reach in terms of enrollment of clinics and providers serving Texas youth; and (2) CPAN service delivery in terms of numbers and characteristics of consultations, patients served, and HRI recommendations. **It reports findings since CPAN went live in May 2020 up through the end of fiscal year (FY) 2023.** Overall, the report shows CPAN's substantial impact on improving access to mental health care for children and adolescents in Texas, with ongoing improvements in service delivery and response times.

Key findings from the report include:

CPAN Reach

- As of August 31, 2023, CPAN had enrolled 2,459 clinics and 13,443 providers across Texas, predominantly in pediatric and family medicine specialties.
- Just over half (53.6%) of enrolled clinics had called CPAN at least once, with usage varying by HRI.
- A total of 25,281 calls were made to CPAN from August 16, 2020 to August 31, 2023, with call volume increasing over time.

Service Delivery

- Most calls to CPAN were for referral assistance (58.6%) and medication management (31.7%).

- Resource Coordinators handled 52.5% of calls, while psychiatrists handled 29.3%.
- Callback response time improved from FY 2021 to FY 2023 with more calls being returned within 5 minutes (33.7% vs. 38.1%, respectively) and fewer calls being returned in over 30 minutes (12.0% vs. 4.4%, respectively) in FY 2023.
- Slightly more female than male patients were served. Most patients were between 6 and 18 years old, with a diverse distribution of racial and ethnic backgrounds.
- Calls primarily resulted in recommended referrals (71.4%), with individual therapy being the most common type of referral (70.3%). Medication changes were recommended in over half (59.1%) of calls.

Recommendations

- 1) **Define Specific CPAN Goals:** Enhance program effectiveness by establishing and sharing specific, measurable objectives for CPAN services. Consider targets for key aspects of the program such as clinic enrollment, geographical reach, utilization among enrolled providers, and specific outcomes achieved.
- 2) **Focus Recruitment Efforts on Clinics in Geographic Areas Characterized by Vulnerability:** Continue efforts to enroll and support clinics in geographic areas of higher vulnerability as defined by the Child Opportunity Index (COI 2.0). Consider tailored outreach approaches to address the specific needs of these clinics and their communities.
- 3) **Increase Engagement with Clinics:** Overall, slightly more than half of enrolled clinics have called in at least once since the inception of the program. This varies by HRI, with 36.8% to 75.5% of enrolled clinics utilizing the service across HRIs. Consider targeting awareness and engagement efforts to reach clinics with lower utilization rates.
- 4) **Streamline Processes to Improve Callback Response Time.** While callback response times have improved each year, 62% of calls were still being returned in more than 5 minutes in FY 2023. Continued efforts to streamline processes (e.g., through increased staffing or leveraging technology) could help achieve further reductions in response times.
- 5) **Track and Outcomes of CPAN Consults:** Monitor outcomes of CPAN consults to evaluate the effectiveness of referrals and recommendations. Implementing an embedded evaluation (limited to a subset of patients across HRIs) to evaluate patients' use of referrals and consultation outcomes at the patient-level could help improve the quality of CPAN services.

TCHATT Trayt Data

Key Findings

The TCHATT process and outcome external evaluation focuses on: (1) TCHATT reach in terms of enrollment of school districts and campuses throughout Texas; and (2) TCHATT service delivery in terms of numbers and characteristics of student referrals and encounters, students served, and HRI recommendations. **It reports findings since TCHATT went live in March 2021 up through the end of fiscal year (FY) 2023.** Overall, TCHATT's success is evident in its widespread enrollment and its ability

to connect students with necessary mental health services. The program effectively serves at-risk and underserved populations across Texas and facilitates transitions to further care when needed.

Key findings from the report include:

TCHATT Reach

- As of August 31, 2023, 5,546 school campuses were enrolled in TCHATT, serving predominantly small to mid-size schools. Enrolled campuses generally mirrored the statewide profile in terms of economic disadvantage and size, although TCHATT enrolled slightly more campuses from higher opportunity areas according to the Child Opportunity Index 2.0.
- As of August 31, 2023, 23,715 students were enrolled in the program. Enrollment has exhibited a steady increase over time, with seasonal variations due to the academic calendar. About 50.5% of active TCHATT campuses enrolled at least one student.
- Slightly more enrolled students were female (55.6%), with most students falling between ages 6-18. Nearly one-third of students were white, while almost half identified as Hispanic. The most frequent reasons for enrollment were anxiety/excessive worry (42.4%) and depression (34.0%).

TCHATT Service Delivery

- TCHATT served 18,198 students across 86,284 sessions, averaging 4.7 sessions per student
- The most common interventions were supportive therapy (26.5%) and cognitive behavioral therapy (25.2%), with a smaller portion involving case management.
- 11,268 students were referred for additional services, with the majority of students (84.5%) receiving a referral for individual therapy. By August 2023, 6,768 students had completed the program (i.e., completed all TCHATT sessions), primarily due to finishing necessary sessions or transitioning to community providers.

Recommendations

- 1) **Define Specific TCHATT Goals:** Enhance program effectiveness by establishing and sharing specific, measurable objectives for TCHATT services. Consider targets for key aspects of the program such as utilization among enrolled campuses, geographical reach, types of services delivered, and specific outcomes achieved.
- 2) **Focus Recruitment Efforts on Campuses in Geographic Areas Characterized by Vulnerability:** The program enrolled fewer campuses in "very low" opportunity areas. Targeted outreach in these areas could help increase enrollment and service access for children in the most vulnerable communities.
- 3) **Increase TCHATT Utilization across Enrolled Campuses:** Overall, 50.5% of active TCHATT campuses had enrolled at least one student in TCHATT. Consider implementing targeted outreach to schools with little or no enrollment to enhance awareness and engagement with TCHATT services.

- 4) **Explore Best Practices among HRIs with Higher Utilization:** There is variation across HRIs with regard to the percentage of enrolled campuses with at least one enrolled student and the percentage of enrolled campuses with at least one TCHATT session. Investigate best practices among HRIs with higher utilization and consider how these practices can be applied or tailored to HRIs with lower utilization.
- 5) **Optimize Seasonal Enrollment:** Since enrollment fluctuates seasonally (lowest during summer break), consider offering alternative programming or resources to maintain engagement and support for students during these periods of lower enrollment.

CPAN & TCHATT Data Limitations

There was substantial progress in addressing data limitations in FY 2023. Examples of positive changes include: links between datasets were clarified; dates and time were set to reflect the local Central time; the inclusion of TCHATT encounter numbers made encounter-level aggregation and summary efforts much easier.

As with any complex project, improvement is an on-going process. We have identified areas of improvement that if addressed, we feel would lead to better and more efficient data. These are:

- 1) **Expanded Documentation:** Basic documentation from Trayt (e.g., variable names, types, possible responses) is available. However, expanded documentation that includes skip patterns (or indications of eligibility), details on responses (beyond a simple list of possible responses), and decision rules for handling problematic situations would improve the ability of analysts to use the data effectively and consistently. Ideally, all such documentation would be in a single, central location. This issue will become more pressing if there is ever a need to on-board (or allow access to) new analysts.
- 2) **Data Cleaning:** There continues to be a need to streamline, standardize, and document the data cleaning process. While basic checks and corrections have been established, more advanced checks, especially involving variables with open-text responses, are needed.

Cost Analysis

Key Findings

CPAN:

The average number of consults provided by the 12 HRIs increased by approximately 50% from the 719 consults per HRI in FY 2022 to 1,062 consults per HRI in FY 2023. The average **direct clinical care personnel** cost per consult was \$161 across the 12 CPAN programs, which was about a 20% decrease compared to the FY 2022 figure of \$199. The direct clinical personnel cost per consult ranged from \$64 (TAMU) to \$356 (TTUHSCEP). Lower costs per consult were driven by a relatively high number of consults per HRI, which is typical when services are increased during initial years with similar provider capacity due to economies of scale. The programs with relatively low direct clinical personnel costs per consult were TAMU (\$64), TTUHSC (\$83), and UNTHSC (\$101). Programs with higher direct clinical personnel costs per consult were TTUHSCEP (\$356), UTSW (\$234), UTHSCH (\$210), and UTRGV

(\$184). These programs, except for UTSW, had a relatively low number of consults and relatively high non-personnel and residual costs.

The average **total** cost per consult was \$938 for the 12 CPAN programs, representing a decrease of about 30% from the \$1,283 average value in FY 2022. By HRI, this total cost per consult ranged from \$482 (DELL) to \$3,579 (UTRGV), corresponding to the programs with the most and the least consults, respectively. This demonstrates the existence of economies of scales as patient volume increases. In other words, costs per consult were overall inversely related to the number of consults. DELL (\$482/consult), UTHSCT (\$613/consult), and UTMB (\$618/consult) were lower-cost HRIs due to the relatively high level of CPAN consults provided, ranging from 1,108 to 2,242. Programs with higher-total costs per consult were UTRGV (\$3,579), TTUHSC (\$2,031), UTHSCH (\$1,773), and UNTHSC (\$1,535). These programs had a relatively low number of consults, ranging from 334 to 756. Many of these clinics also had higher total costs per consult for the CPAN program in FY 2022. A similar trend is also detected by comparing the total budget spending per enrolled CPAN provider: programs with a lower number of enrolled CPAN providers had higher unit budget spending per enrolled provider. Across all programs, the average direct clinical personnel cost per consult (\$161) only comprises about 17 percent of the total average cost per consult (\$938) for CPAN. Therefore, the bulk of resources were devoted to other aspects of the program, including planning, marketing, enrollment of clinics, training, and education of primary care providers and their staff, and general program administration.

TCHAT:

The TCHAT program also experienced considerable growth and expansion in FY 2023. Compared to FY 2022, the number of consultation sessions increased nearly three-fold from 32,565 to 84,972 and the number of unique patients increased nearly three-fold from 7,600 to 19,421. Across the 12 HRIs, an average of 1,603 patients were provided services, and a total of 7,077 consultations were performed per HRI.

The average total cost per TCHAT patient was \$1,357, a nearly 50% reduction from the \$2,557 FY 2022 figure, indicating the presence of economies of scale as the program services were scaled up across the HRIs. The average direct clinical care personnel cost per *patient* was \$429 (vs. \$401 in FY 2022) for the 12 TCHAT programs and ranged from \$316 (UTHSCSA) to \$558 (UTMB). Lower costs per patient and per session were driven by a relatively high number of patients and a somewhat lower intensity of CAP staffing. UTHSCSA was one of the lowest total-cost programs (per session and per patient) with the lowest direct clinical cost per patient (\$316) and per session (\$48) due largely to low CAP utilization (only \$15 per patient, or less than 5% of its direct clinical personnel costs) and a high consulting load of 15,230 sessions. Higher average total-cost HRIs, such as UTRGV (\$2,380 per patient), had a relatively low number of patients (762) and sessions (2,744), and a relatively high total non-personnel (\$1,142 per patient) and residual costs (\$829 per patient). The average direct clinical personnel cost per patient in TCHAT (\$429) only comprises about 32 percent of the total average cost per patient (\$1,357) for TCHAT. Therefore, the bulk of resources were devoted to other aspects of the program, including planning, marketing, enrollment of schools, training, and education of school counselors and their staff, and general program administration. This same trend held true for the cost per TCHAT session.

The average total cost per session was \$308, which again involved a 50% decrease from \$597 in FY 2022, for the 12 TCHAT programs. The total cost per session ranged from \$147 (UTHSCSA) to \$528 (UTSW). The average direct clinical care personnel cost per *session* was \$97 (vs. \$94 in FY 2022) for the 12 TCHAT programs and ranged from \$48 (UTHSCSA) to \$130 (UTSW). For the TCHAT program

too, the lower costs per session were driven by a relatively high number of patients. UTHSCH had one of the lowest total-cost per session (\$194), due to a high consulting load of 10,602 sessions. In addition, programs with a lower number of enrolled students had higher total budget spending per enrolled student. When total costs are spread over all students enrolled in schools with TCHATT programs, the average cost per student was \$7 (vs. \$8 in FY 2022) and ranged from \$3 per student (UTHSCH) to \$16 per student (TAMU).

Recommendations

Based on the report provided, it is clear that there has been substantial growth and expansion in both CPAN and TCHATT programs, with significant improvements in cost efficiency and economies of scale. Here are some recommendations based on the findings:

- 1) **Focus on Increasing Patient Volume:** These findings show that lower costs per consult or session are driven by a relatively high number of patients. Increasing patient volume could further enhance the efficiency and reduce costs. Consider targeted outreach and marketing efforts to attract more patients to the programs, particularly in areas where patient numbers are currently low.
- 2) **Analyze and Optimize Staffing Levels:** Programs with lower costs per consult and session, such as TAMU and UTHSCSA, had relatively lower direct clinical personnel costs and higher patient volumes. Assess current staffing levels and adjust as necessary to maintain a balance between clinical personnel costs and patient volume.
- 3) **Standardize Training and Education:** Given that a significant portion of costs goes towards planning, marketing, and training, standardizing training and education across all HRIs may lead to cost savings and increased efficiency.
- 4) **Improve Utilization of Resources:** Programs with higher costs per consult or session tend to have relatively low numbers of consults and sessions. Analyze resource utilization, including non-personnel and residual costs, to identify areas where resource allocation can be optimized. Encourage collaboration and sharing of best practices between HRIs to improve resource utilization and cost management.
- 5) **Plan Impact Evaluation:** Collaborate with the UTHealth Houston School of Public Health Center for Health Care Data to determine the feasibility of assessing the impact of the TCMHCC programs on population-based child and adolescent self-harm rates and other mental health problems suffered by Texas adolescents.

By implementing these recommendations, the programs can further capitalize on economies of scale, optimize resource utilization, and improve overall program efficiency and effectiveness.

Limitations

Below are key challenges that we encountered as part of the external evaluation cost analysis. Possible solutions are discussed when available.

1. **Assumed probabilities of personnel involved in each categorical task for CPAN and TCHATT.** We acknowledge that part of the large residuals between our calculated costs and the reported expenditures of each HRI. Each HRI may not be paying partial salaries for each personnel.

2. **Large variation in activity times reported in the surveys and potential under-reporting of times.** Although some variation is expected, the personnel reporting time potentially need training in consistently determining what comprises each activity, so the reported data are consistent across HRIs. In addition, it is possible some of the reported times are less than what it would take to perform the activity.
3. **Insufficient details on administrative overhead costs.** Since we do not have access to all administrative overhead costs, many HRIs have a budget differential/residual amount. This can be reconciled over years as we obtain more detailed financial information from all the HRIs.
4. **Patient-level vulnerability data is limited.** Due to the vulnerability of the studied population, there are current limits in the data able to be garnered and assessed with regard to patient-specific indicators of vulnerability (e.g., demographic, sex and gender, socio-demographic factors, as well as specific exposure factors of potential interest to the Consortium, e.g., COVID-19 pandemic-related trauma).

CPAN TRAYT DATA

Introduction

The TCMHCC CPAN overarching goal is to increase primary care providers' access to consultation services to improve the care of children and adolescents with behavioral health needs. The CPAN process and outcome external evaluation focuses on: (1) CPAN clinic/provider reach in terms of enrollment of clinics and providers serving Texas youth; and (2) CPAN service delivery in terms of numbers and characteristics of consultations, patients served, and HRI recommendations.

Methods

The External Evaluation team obtains TCHATT Trayt data extracts on a monthly basis and cleans the data. **Below we present a quantified analysis of CPAN based on a secondary analysis of data collected in Trayt between May 1, 2020 and August 31, 2023.**

Results

CPAN Reach: Clinic and Provider Enrollment

As of August 31, 2023, the CPAN network enrolled 2,459 clinics, representing 13,443 providers across Texas. Table 1 presents the distribution of clinic enrollment by HRI. Table 2 presents the distribution of provider enrollment by HRI.

Table 1. Enrolled CPAN Clinics by HRI

	Clinic Enrollment ^a n (%)
All HRIs	2,459 (100%)
BCM	273 (11.1%)
TAMUHSC	142 (5.8%)
TTUHSC	239 (9.7%)
TTUHSCEP	94 (3.8%)
UNTHSC	195 (7.9%)
UTDell	272 (11.1%)
UTHSCSA	155 (6.3%)
UTHSCH	121 (4.9%)
UTHSCT	217 (8.8%)
UTMB	158 (6.4%)
UTRGV	161 (6.6%)
UTSW	432 (17.6%)

(a) Data source: Trayt CPAN Clinic Directory (May 1, 2020-August 31, 2023). Includes clinics with active account status only.

Table 2. Enrolled CPAN Providers by HRI

	Provider Enrollment ^a n (%)
All HRIs	13,443 (100%)
BCM	1,439 (10.7%)
TAMUHSC	1,111 (8.3%)
TTUHSC	1,129 (8.4%)
TTUHSCEP	562 (4.2%)
UNTHSC	812 (6.0%)
UTDell	1,151 (8.6%)
UTHSCSA	640 (4.8%)
UTHSCH	926 (6.9%)
UTHSCT	1,413 (10.5%)
UTMB	671 (5.0%)
UTRGV	938 (7.0%)
UTSW	2,651 (19.7%)

(a) Data source: Trayt CPAN Clinic Staff Directory (May 1, 2020-August 31, 2023).

Table 3 presents enrolled CPAN clinic characteristics with respect to clinic specialty type. It excludes 8 clinics with missing clinic specialty. The majority of enrolled clinics comprise pediatric clinics (37.4%) or family medicine clinics (35.5%).

Table 3. Enrolled CPAN Clinics by Clinic Type and HRI

	Total Clinic Enrollment with Clinic Type Recorded ^a n (Column %)	Pediatrics ^a n (Row %)	Family Medicine ^a n (Row %)	Integrated (Family & Pediatrics) ^a n (Row %)	Other ^{a,b} n (Row %)
All HRIs	2,451 (100.0%)	917 (37.4%)	870 (35.5%)	371 (15.1%)	293 (12.0%)
BCM	272 (11.1%)	131 (48.2%)	67 (24.6%)	19 (7.0%)	55 (20.2%)
TAMUHSC	142 (5.8%)	27 (19.0%)	79 (55.6%)	28 (19.7%)	8 (5.6%)
TTUHSC	238 (9.7%)	50 (21.0%)	116 (48.7%)	39 (16.4%)	33 (13.9%)
TTUHSCEP	94 (3.8%)	44 (46.8%)	22 (23.4%)	7 (7.4%)	21 (22.3%)
UNTHSC	194 (7.9%)	76 (39.2%)	105 (54.1%)	6 (3.1%)	7 (3.6%)
UTDell	272 (11.1%)	87 (32.0%)	50 (18.4%)	87 (32.0%)	48 (17.6%)
UTHSCSA	154 (6.3%)	74 (48.1%)	50 (32.5%)	18 (11.7%)	12 (7.8%)
UTHSCH	117 (4.8%)	60 (51.3%)	18 (15.4%)	19 (16.2%)	20 (17.1%)
UTHSCT	217 (8.9%)	36 (16.6%)	132 (60.8%)	34 (15.7%)	15 (6.9%)
UTMB	158 (6.4%)	47 (29.7%)	42 (26.6%)	55 (34.8%)	14 (8.9%)
UTRGV	161 (6.6%)	101 (62.7%)	47 (29.2%)	6 (3.7%)	7 (4.3%)
UTSW	432 (17.6%)	184 (42.6%)	142 (32.9%)	53 (12.3%)	53 (12.3%)

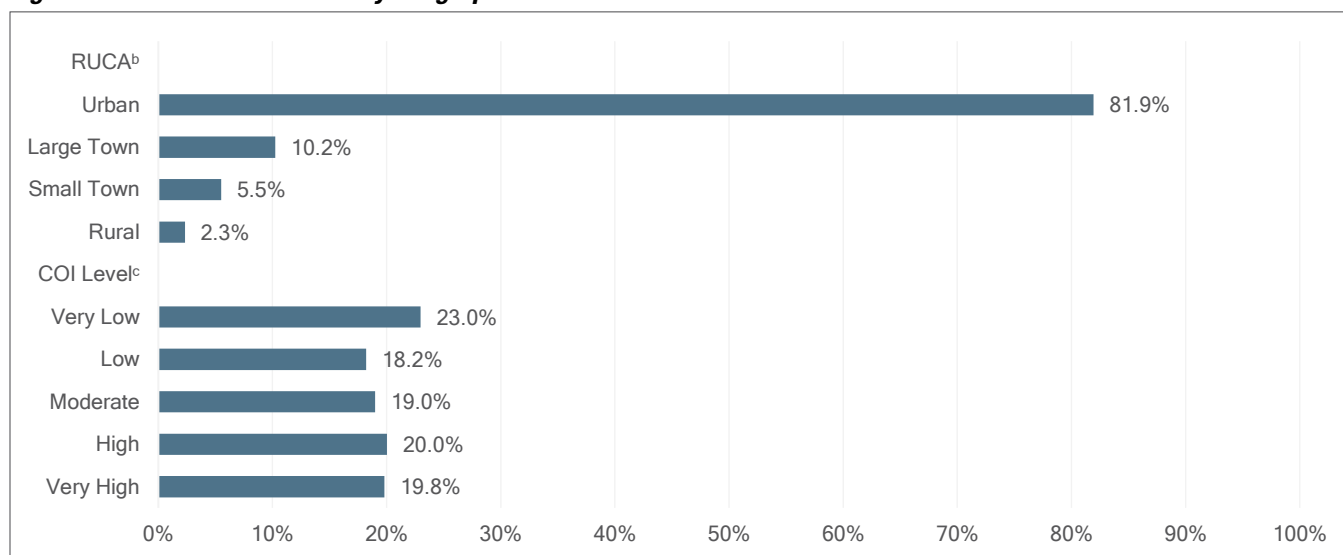
(a) Data source: Trayt CPAN Clinic and Clinic Staff Directory (May 1, 2020-August 31, 2023). Includes clinics with active account status only. Clinic Type is missing for 8 (0.3%) of enrolled clinics. (b) "Other" clinic type includes: Community Health Center, Internal Medicine, Integrative Care (Functional/Holistic), Mental Health, Midwifery, Nurse-Family Partnership, OB-GYN, Women's or Maternal Health, and Other.

CPAN Reach: Geographic Characteristics of Enrolled Clinics

A priority of CPAN is to serve at-risk and underserved children and adolescents. To do this, we examined providers reached and served by geographic location and population-level vulnerability indicators. Rural-Urban Commuting Area Codes (RUCA) is a census tract-based classification developed by U.S. Department of Agriculture that uses standard census measures of population density, urbanization, and daily commuting to characterize all U.S. census tracts with respect to their rural/urban status and commuting relationships to other census tracts.

To examine the inclusion of clinics serving geographic areas characterized by vulnerability, we examined the distribution of clinics by community-level Child Opportunity Index 2.0 (COI 2.0) scores. The COI is a validated tool that quantifies neighborhood conditions in the United States for children, ranking them from lowest to highest opportunity. This index includes 29 indicators in three domains: (1) education, (2) health and environment and (3) social and economic.

Figure 1. Enrolled CPAN Clinics by Geographic Characteristics^a

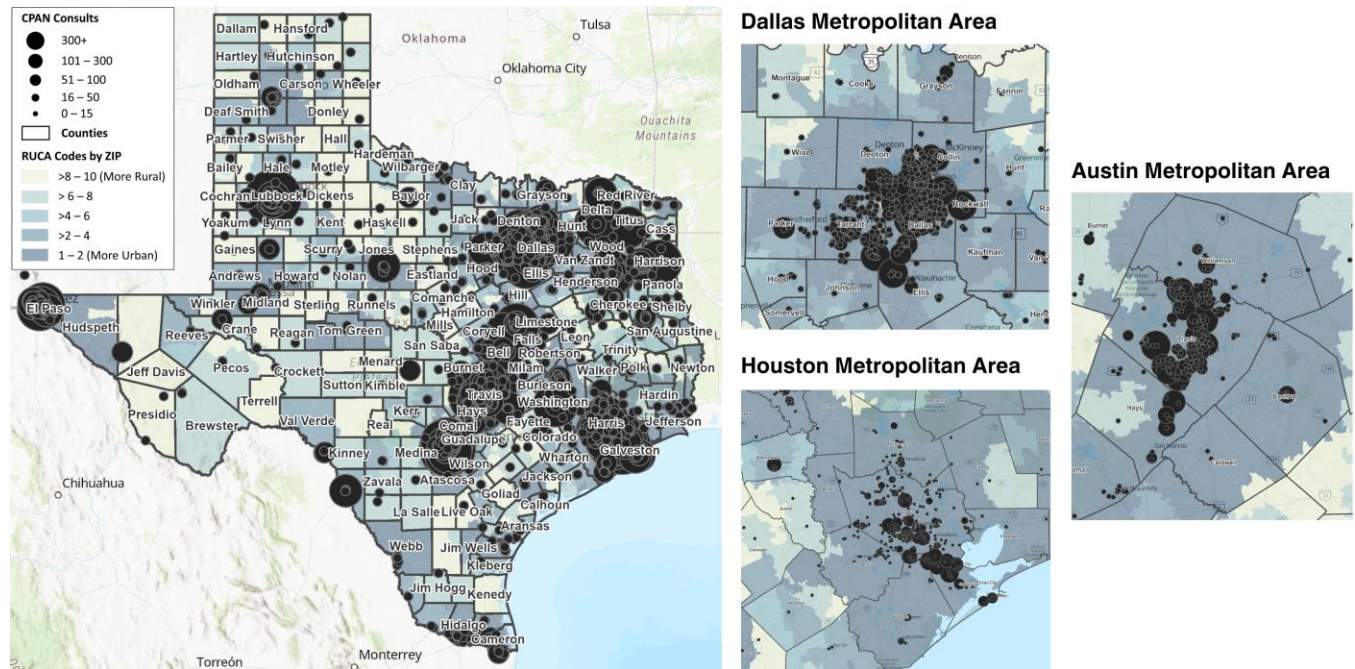


(a) Data source: Tract CPAN Clinic and Clinic Staff Directory Data (May 1, 2020-August 31, 2023). Includes clinics with active account status only. (b) 2010 Rural-Urban Commuting Area Codes, USDA Economic Research Service, U.S. Department of Agriculture. RUCA Codes 1-3 = Urban; 4-6 = Large Town; 7-9 = Small Town; 10 = Completely Rural. (c) Data source: 2022 Child Opportunity Index 2.0 database (<https://www.diversitydatakids.org/>).

Below, we present maps of the geographic distribution of clinics enrolled in CPAN across Texas with regards to RUCA designations (Figure 2) and COI levels (

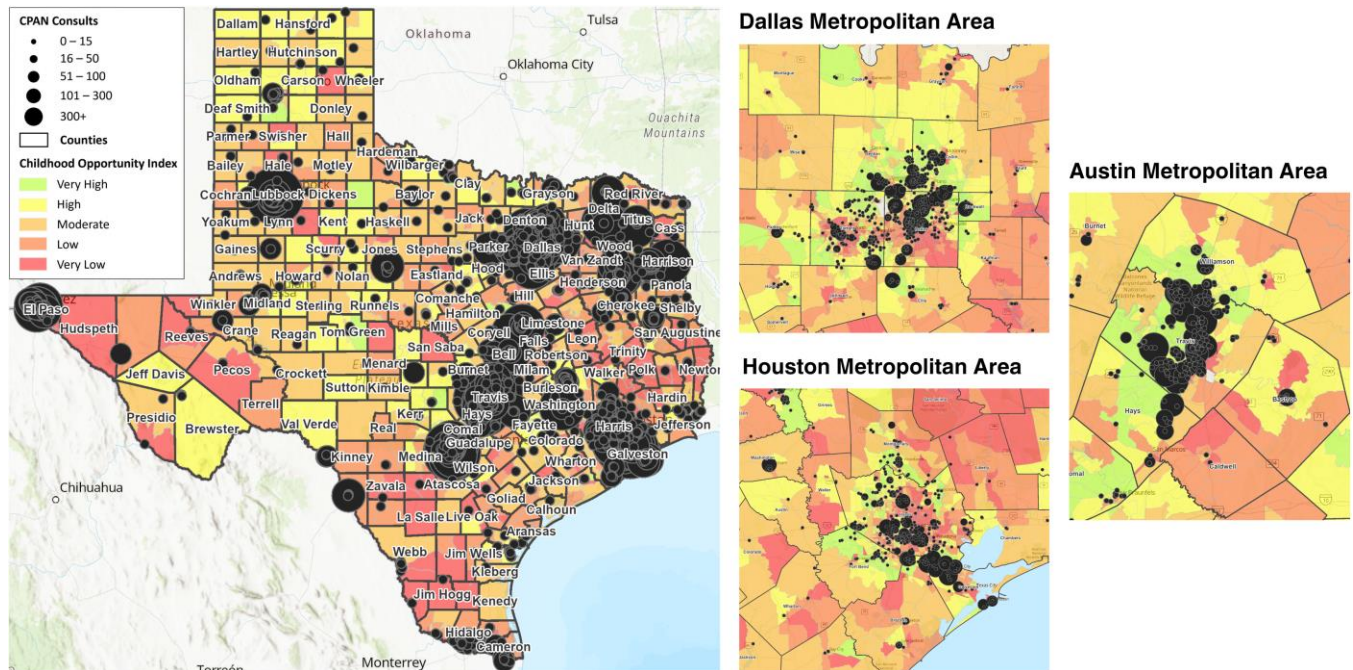
Figure 3). Maps of the Dallas, Austin and Houston metropolitan areas are also included to help demonstrate the variability of RUCA and COI characteristics within the most densely populated urban areas.

Figure 2. Enrolled CPAN Clinics by Rural-Urban Continuum at the Census Block Group Level



(a) Data source: Trayt CPAN Clinic and Clinic Staff Directory Data (May 1 2020-August 31, 2023). Includes clinics with “active” status only. (b) 2010 Rural-Urban Commuting Area Codes, USDA Economic Research Service, U.S. Department of Agriculture. RUCA Codes 1-3 = Urban; 4-6 = Large Town; 7-9 = Small Town; 10 = Completely Rural. Dashboard available at: <https://uthealthsph.maps.arcgis.com/apps/webappviewer/index.html?id=e182f1dc3c2c42de8f0c9f75a9dd9b36>

Figure 3. Enrolled CPAN Clinics^a by Child Opportunity Index^b at the Census Block Group Level



(a) Data source: Trayt CPAN Clinic and Clinic Staff Directory Data (May 1 2020-August 31, 2023). Includes clinics with “active” status only. (b) Data source: 2022 Child Opportunity Index 2.0 database (<https://www.diversitydatakids.org/>).

Dashboard available at: <https://uthealthsph.maps.arcgis.com/apps/webappviewer/index.html?id=e182f1dc3c2c42de8f0c9f75a9dd9b36>

CPAN Reach: Program Usage Among Enrolled Clinics

Table 4 presents the number of enrolled clinics with at least one CPAN consultation call by HRI. As of August 31, 2023, a little more than half (53.6%) of enrolled clinics had called CPAN at least once. Usage varied by HRI, ranging from 36.8% (UTRGV) to 75.5% (TTUHSCEP).

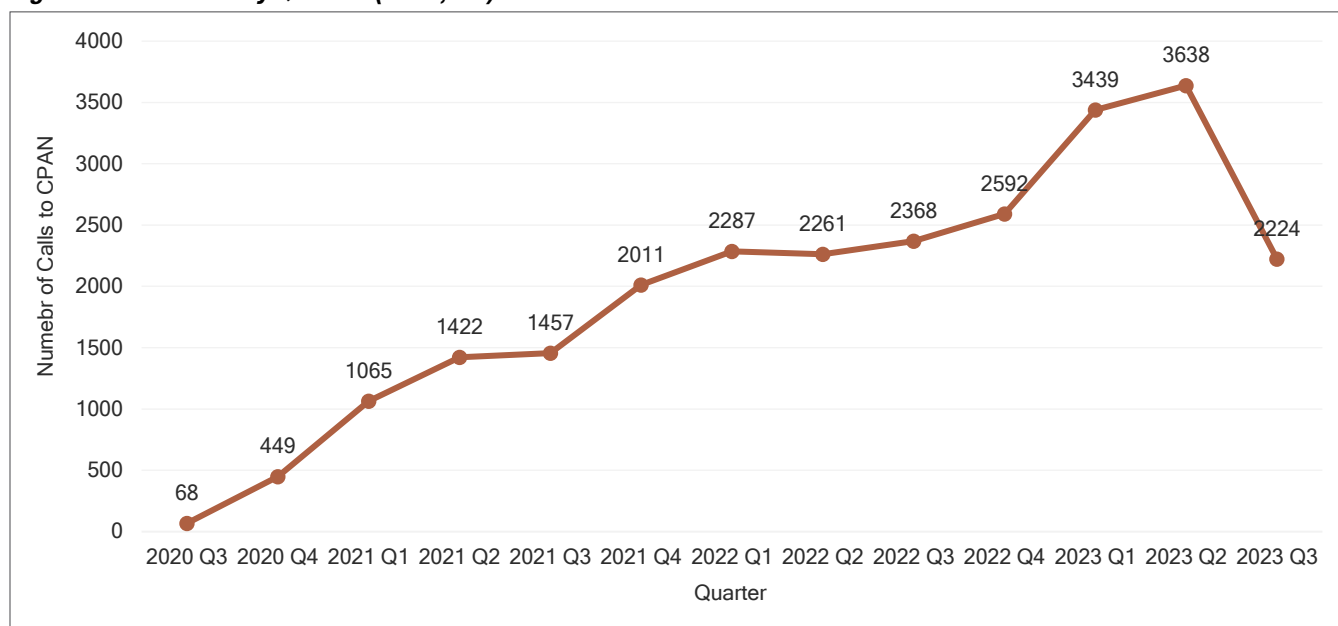
Table 4. Enrolled CPAN Clinics by HRI and Call Status

	Total Enrolled Clinics	Clinics with No Calls ^b	Clinics with At Least One Call ^b
	n (Column %) ^a	n (Row %)	n (Row %)
HRI	2,459 (100%)	1,141 (46.4%)	1,318 (53.6%)
BCM	272 (11.1%)	129 (47.4%)	143 (52.6%)
TAMUHSC	142 (5.8%)	46 (32.4%)	96 (67.6%)
TTUHSC	238 (9.7%)	101 (42.4%)	137 (57.6%)
TTUHSCEP	94 (3.8%)	23 (24.5%)	71 (75.5%)
UNTHSC	196 (8.0%)	99 (50.5%)	97 (49.5%)
UTDell	271 (11.0%)	117 (43.2%)	154 (56.8%)
UTHSCSA	156 (6.3%)	52 (33.3%)	104 (66.7%)
UTHSCH	121 (4.9%)	59 (48.8%)	62 (51.2%)
UTHSCT	217 (8.8%)	81 (37.3%)	136 (62.7%)
UTMB	158 (6.4%)	94 (59.5%)	64 (40.5%)
UTRGV	163 (6.6%)	103 (63.2%)	60 (36.8%)
UTSW	431 (17.5%)	237 (55.0%)	194 (45.0%)

(a) Data Source: Trayt CPAN Clinic and Clinic Staff Directory (May 1, 2020-August 31, 2023). Includes clinics with active account status only. Clinic Type is missing for 8 (0.3%) of enrolled clinics. (b) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023).

Between August 16, 2020 and August 31, 2023, there were 25,281 calls to CPAN across all HRIs, with a general pattern of call volume increasing over time (Figure 4). (Note: Due to the mismatch between fiscal and calendar years, data for one month [September 2023] is missing from 2023 Q3.)

Figure 4. CPAN Calls by Quarter^a (n=25,281)



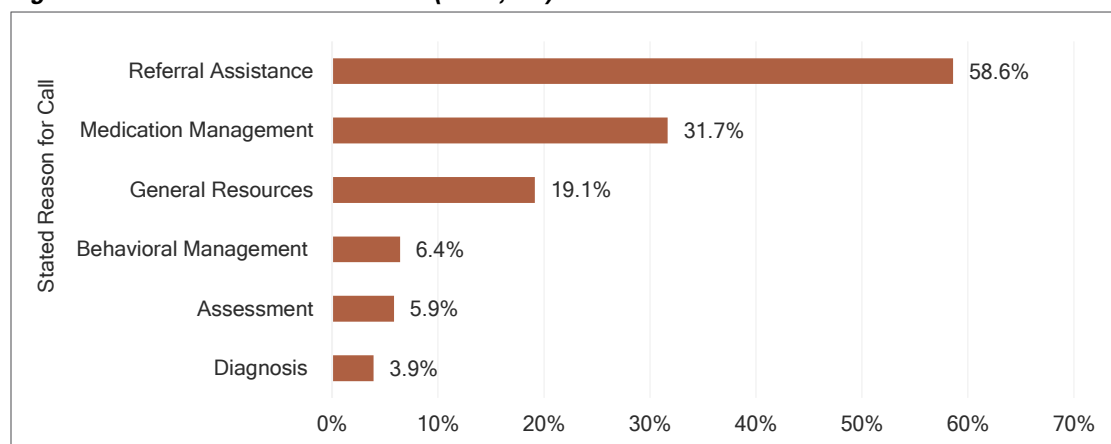
(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). Quarters correspond to calendar years (Q1 = January - March; Q2 = April - June; Q3 = July - September; Q4 = October - December). Therefore, data is incomplete for 2023 Q3 (missing September 2023).

CPAN Service Delivery: Consultation Call Characteristics

This next section describes characteristics of HRI assistance to providers calling for consultation services. The most common reason providers reported for calling CPAN was for referral assistance (58.6%) or medication management (31.7%) (Figure 5). The majority of calls (52.5%) were assigned to a Resource Coordinator (

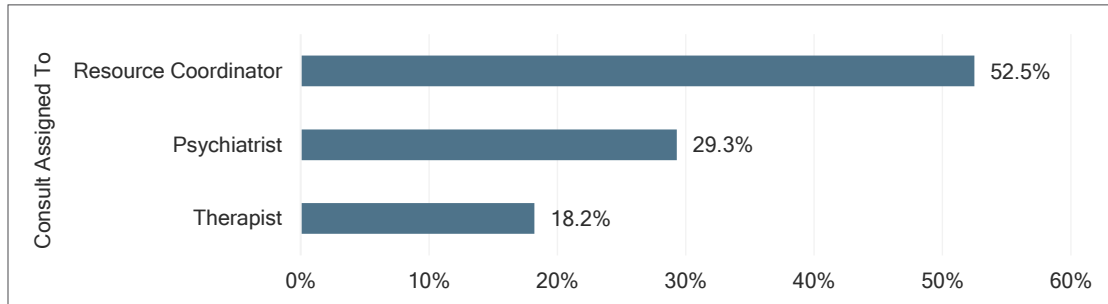
Figure 6). Psychiatrists were assigned to less than a third (29.3%) of the calls that came in.

Figure 5. Reasons for CPAN Consults^a (n=25,281)



(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). A PCP may report more than one reason for calling; therefore, results will not sum up to 100%.

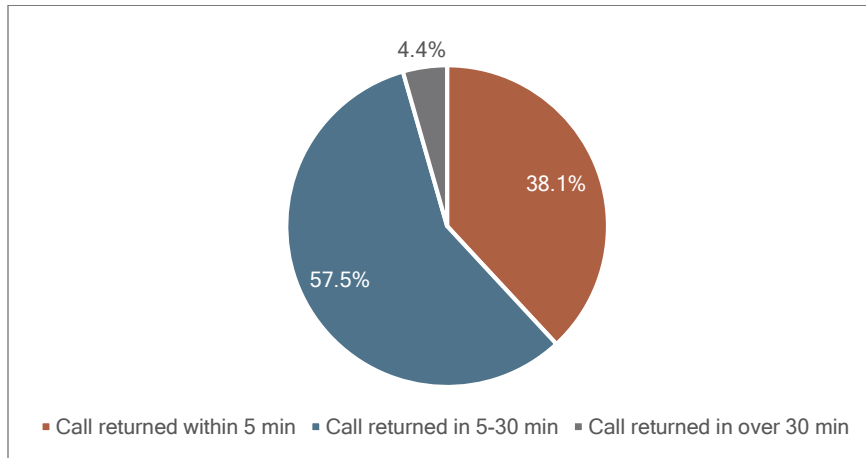
Figure 6. CPAN Consult Assignment (n=25,281)^a



(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). More than one type of CPAN staff may be assigned to a consultation.

Through August 31, 2023, 5,225 calls were assigned to a psychiatrist and subject to a 30-minute callback window. Almost all of these calls were returned either within 5 minutes (38.1%) or within 5-30 minutes (57.5%) of the initial call (Figure 7). Callback response time improved from fiscal year 2021 to fiscal year 2023 with more calls being returned within 5 minutes (33.7% vs. 38.1%, respectively) and fewer calls being returned in over 30 minutes (12.0% vs. 4.4%, respectively) in fiscal year 2023 (Table 5).

Figure 7. Psychiatrist Callback Response Time (n=5,225)



(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). Includes consults assigned to a psychiatrist and subject to 30-minute callback window.

Table 5. Psychiatrist Callback Response Time by Year

	CPAN Calls Assigned to a Psychiatrist		
	FY 2021 ^a (n=1,279) n (Column %)	FY 2022 ^b (n=3,165) n (Column %)	FY 2023 ^c (n=5,225) n (Column %)
Call Back Time			
Call returned within 5 min	343 (26.8%)	1,066 (33.7%)	1,991 (38.1%)
Call returned in 5-30 min	783 (61.2%)	1,900 (60.0%)	3,002 (57.5%)
Call returned in over 30 min	153 (12.0%)	199 (6.3%)	232 (4.4%)

(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2021). Includes consults assigned to a psychiatrist and subject to 30-minute callback window. (b) Data Source: Trayt CPAN Encounter-level Extract (September 1, 2021-August 31, 2022). Includes consults assigned to a psychiatrist and subject to 30-minute callback window. (c) Data Source: Trayt CPAN Encounter-level Extract (September 1, 2022-August 31, 2023). Includes consults assigned to a psychiatrist and subject to 30-minute callback window.

CPAN Service Delivery: Patient Characteristics

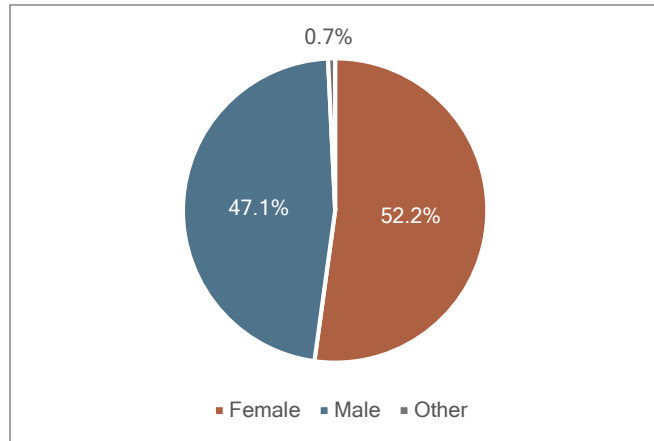
Slightly more female than male patients were served by CPAN (52.2% vs. 47.1%, respectively) (

Figure 8). Almost half (46.6%) of patients were between the ages of 13 and 18 years, and 41% were between the ages of 6 and 12 years (Figure 9). Forty percent were non-Hispanic (NH) white, 29.6% were Hispanic, 10% were NH

Black, 2.6% were NH Asian, and 16.7% declined providing their race (Figure 10 patients.

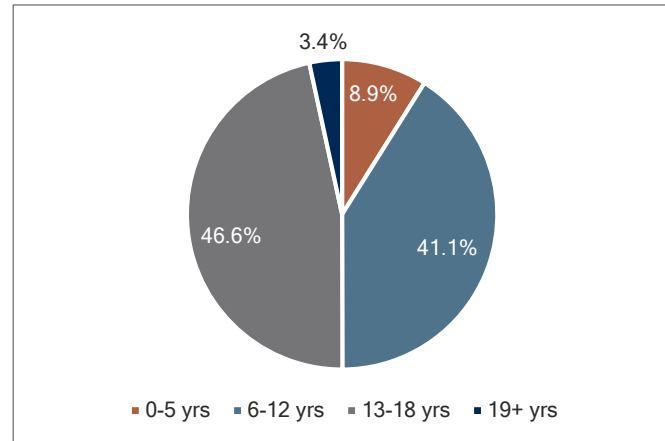
Figure 10).

Figure 8. Gender of Patients Served by CPAN^a (n=24,388)



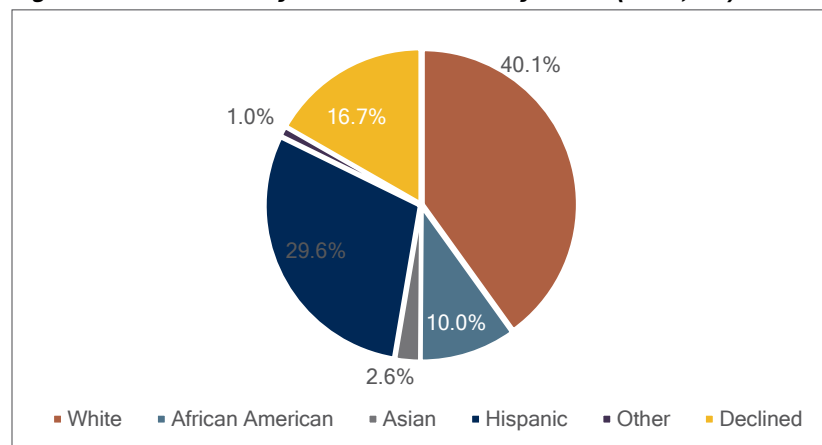
(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023).

Figure 9. Age of Patients Served by CPAN^a (n=24,388)



(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). Age missing from 335 patients.

Figure 10. Race/Ethnicity of Patients Served by CPAN^a (n=24,388)



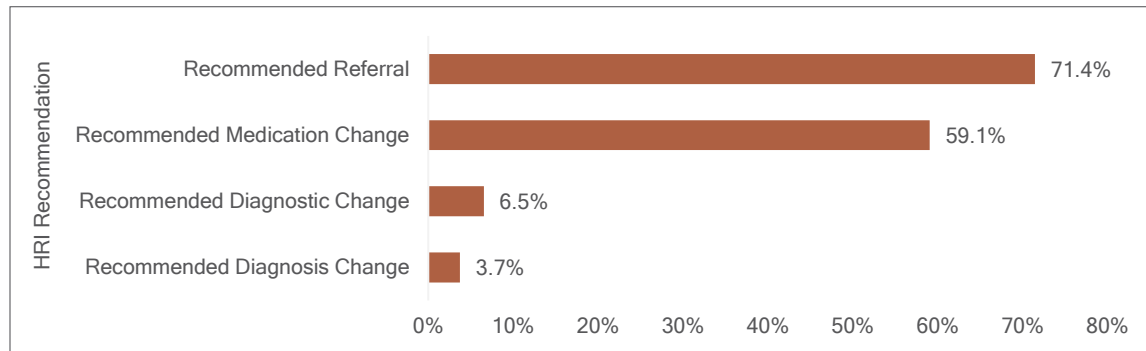
(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020 -August 31, 2023). Includes calls that were about a specific patient. Race missing from 18 patients.

CPAN Service Delivery: Outcomes of CPAN Consults

Most calls (71.4%) resulted in a recommended referral (Figure 11). The most common change recommendation was for medication change, which occurred in over half (59.1%) of calls. Diagnostic and diagnosis changes were recommended in less than 10% of calls.

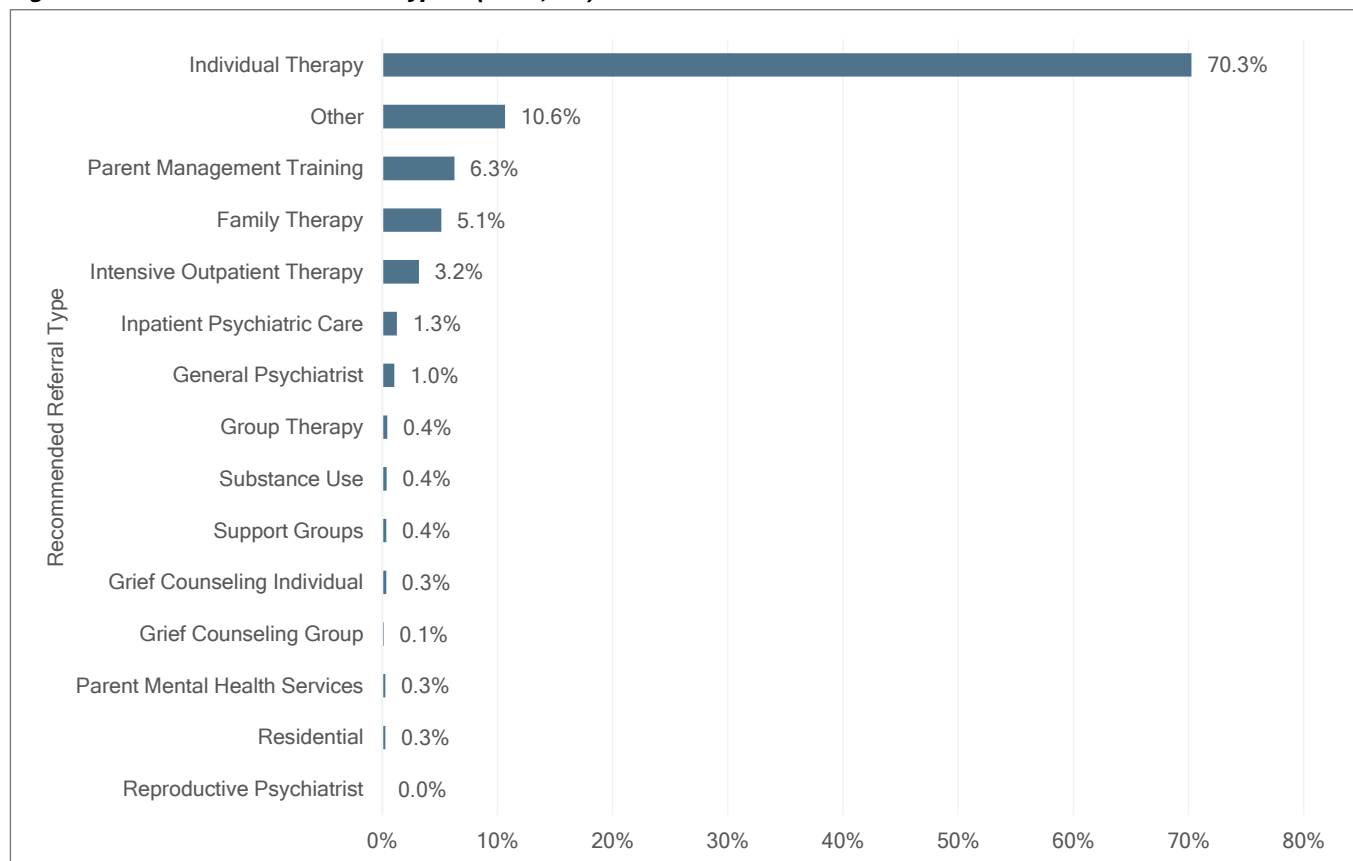
Among the calls that resulted in a recommended referral, the most common referral type was for individual therapy (70.3% of calls) (Figure 12). Other referral types were recommended in less than 10% of calls.

Figure 11. CPAN HRI Recommendations to Callers^a (n=25,281)



(a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). More than one recommendation may be provided, so results will not sum to 100%.

Figure 12. Recommended Referral Types^a (n=16,980)



a) Data Source: Trayt CPAN Encounter-level Extract (August 16, 2020-August 31, 2023). More than one referral types can be selected so results will not sum to 100%.

TCHATT TRAYT DATA

Introduction

The TCMHCC TCHATT overarching goal is to increase access to child and adolescent behavioral health assessments among underserved communities by developing a network of school districts and corresponding school campuses enrolled throughout the state to connect students with mental health providers based in one of the 12 HRIs. The TCHATT process and outcome external evaluation focuses on: (1) TCHATT reach in terms of enrollment of school districts and campuses throughout Texas; and (2) TCHATT service delivery in terms of numbers and characteristics of student referrals and encounters, students served, and HRI recommendations.

Methods

The External Evaluation team obtains TCHATT Trayt data extracts from the Internal Evaluation team on a monthly basis. **Below we present a quantified analysis of TCHATT based on a secondary analysis of data collected in Trayt between March 24, 2021 – August 31, 2023.**

Results

TCHATT Reach: Campus Enrollment

As of August 31, 2023, 5,546 school campuses were enrolled and active in the TCHATT program, with the number of enrolled campuses varying by HRI (Table 6). The majority of campuses were small to mid-size with 44% having 500 or fewer students and 42% having between 501 and 1,000 students.

Table 6. Enrolled TCHATT Campuses by HRI and Campus Size

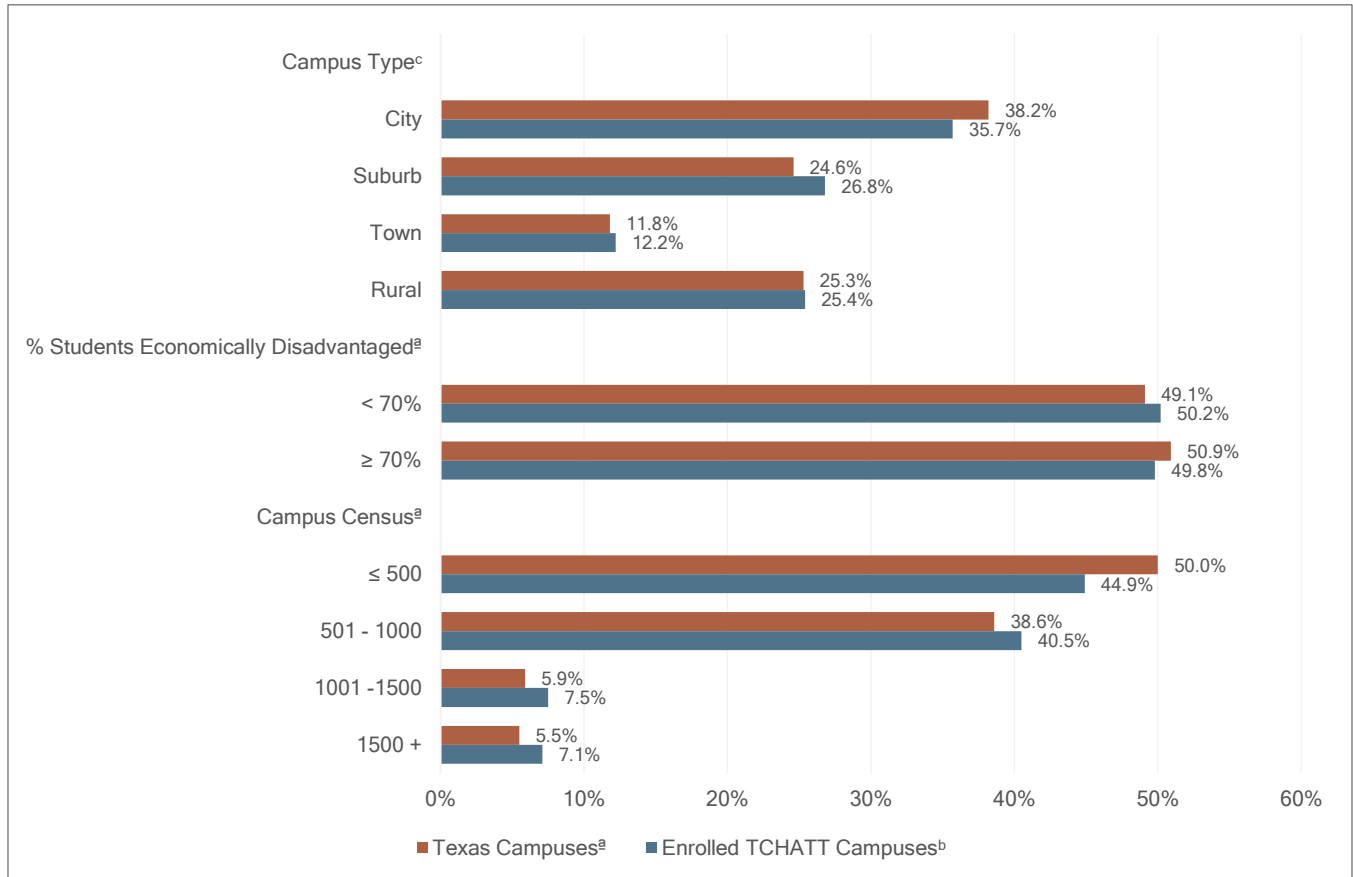
	Total Enrolled Campuses ^a n (Column %)	Campus Size ^b			
		≤ 500 n (Row %)	501 - 1000 n (Row %)	1001 - 1500 n (Row %)	1500 + n (Row %)
All HRIs	5,546 (100%)	2,327 (44.2%)	2,196 (41.7%)	377 (7.2%)	361 (6.9%)
BCM	416 (7.5%)	92 (23.1%)	235 (58.9%)	35 (8.8%)	37 (9.3%)
TAMUHSC	337 (6.1%)	166 (52.5%)	122 (38.6%)	12 (3.8%)	16 (5.1%)
TTUHSC	759 (13.7%)	519 (72.3%)	161 (22.4%)	20 (2.8%)	18 (2.5%)
TTUHSCEP	152 (2.7%)	56 (40.3%)	61 (43.9%)	13 (9.4%)	9 (6.5%)
UNTHSC	479 (8.6%)	200 (43.6%)	209 (45.5%)	20 (4.4%)	30 (6.5%)
UTDell	412 (7.4%)	118 (29.6%)	213 (53.5%)	31 (7.8%)	36 (9%)
UTHSCSA	753 (13.6%)	372 (52.5%)	253 (35.7%)	44 (6.2%)	39 (5.5%)
UTHSCH	718 (12.9%)	150 (21.9%)	328 (47.8%)	131 (19.1%)	77 (11.2%)
UTHSCT	166 (3%)	119 (73.9%)	35 (21.7%)	6 (3.7%)	1 (0.6%)
UTMB	314 (5.7%)	129 (45.3%)	133 (46.7%)	9 (3.2%)	14 (4.9%)
UTRGV	463 (8.3%)	207 (47.7%)	177 (40.8%)	17 (3.9%)	33 (7.6%)
UTSW	577 (10.4%)	199 (35.7%)	269 (48.2%)	39 (7%)	51 (9.1%)

(a) Data Source: TCHATT Campus List (through August 31, 2023). Includes campuses with MOU status of "Active" only. COI missing for 3 campuses. (b) Data Source: Texas Education Agency Campus Data.

TCHATT Reach: Geographic Characteristics of Enrolled Campuses

A priority of TCHATT is to serve at-risk and underserved children and adolescents. Figure 13 describes school campuses enrolled in TCHATT by geographic reach and reach to vulnerable communities. Overall, campuses enrolled in TCHATT are comparable to campuses statewide with respect to the campus type, percentage of students considered economically disadvantaged, and campus size.

Figure 13. Comparison of Texas and Enrolled TCHAT Campuses by Geographic and Population-level Vulnerability Indicators

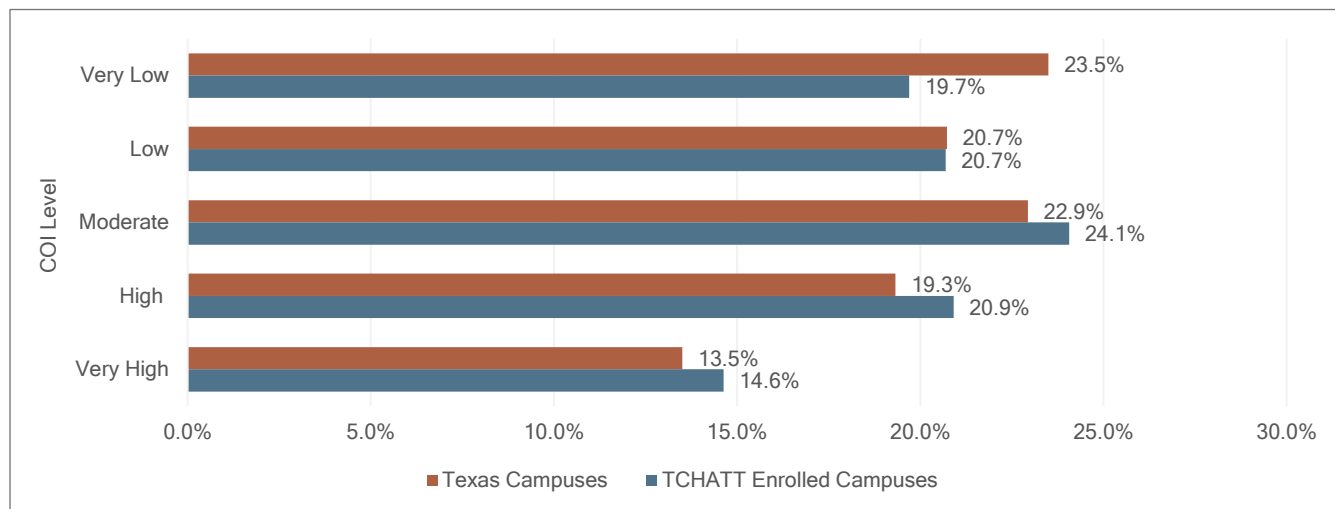


(a) Data Source: Texas Education Agency PEIMS Data 2021-2022. There are 9,312 Texas school campuses, but sample sizes vary due to missing data. (b) Data Source: TCHAT Campus List (through August 31, 2023). There are 4,493 Texas school campuses enrolled in TCHAT, but sample sizes vary due to missing data. (c) Data Source: TEA 2020-2021 Campus Type Data. NCES locale definitions: "City" = Territory inside an urbanized area and inside a principal city; "Suburb" = Territory inside an urbanized area and outside a principal city; "Town" = Territory inside an urban cluster; "Rural" = Census-defined rural territory.

To further assess the inclusion of campuses in geographic areas characterized by vulnerability, we examined the distribution of campuses by community-level Child Opportunity Index 2.0 (COI 2.0) scores. The COI is a validated tool that quantifies neighborhood conditions in the United States for children, ranking them from lowest to highest opportunity. This index includes 29 indicators in three domains: (1) education, (2) health and environment and (3) social and economic. When compared to all Texas campuses, TCHAT enrolled fewer campuses in "very low" opportunity areas and slightly more campuses in both "high" and "very high" opportunity areas (

Figure 14).

Figure 14. Enrolled TCHAT Campuses by Neighborhood-Level Indicators: The Childhood Opportunity Index (COI)

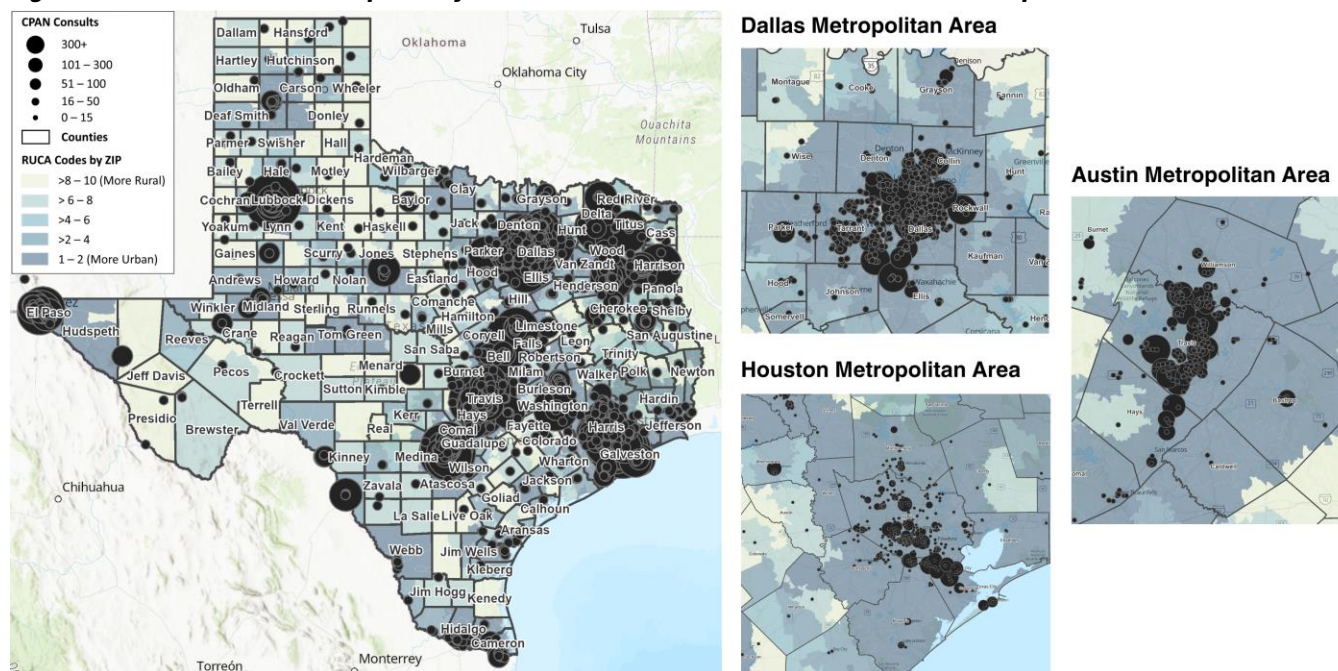


(a) Data source: 2022 Child Opportunity Index 2.0 database (<https://www.diversitydatakids.org/>). (b) Data Source: Texas Education Agency PEIMS Data 2021-2022.
(c) Data Source: TCHAT Campus List as of August 31, 2023.

Below, we present maps of the geographic distribution of campuses enrolled in TCHAT across Texas with regards to RUCA designations (Figure 15) and COI levels (

Figure 16). Maps of the Dallas, Austin and Houston metropolitan areas are also included to help demonstrate the variability of RUCA and COI characteristics within the most densely populated urban areas.

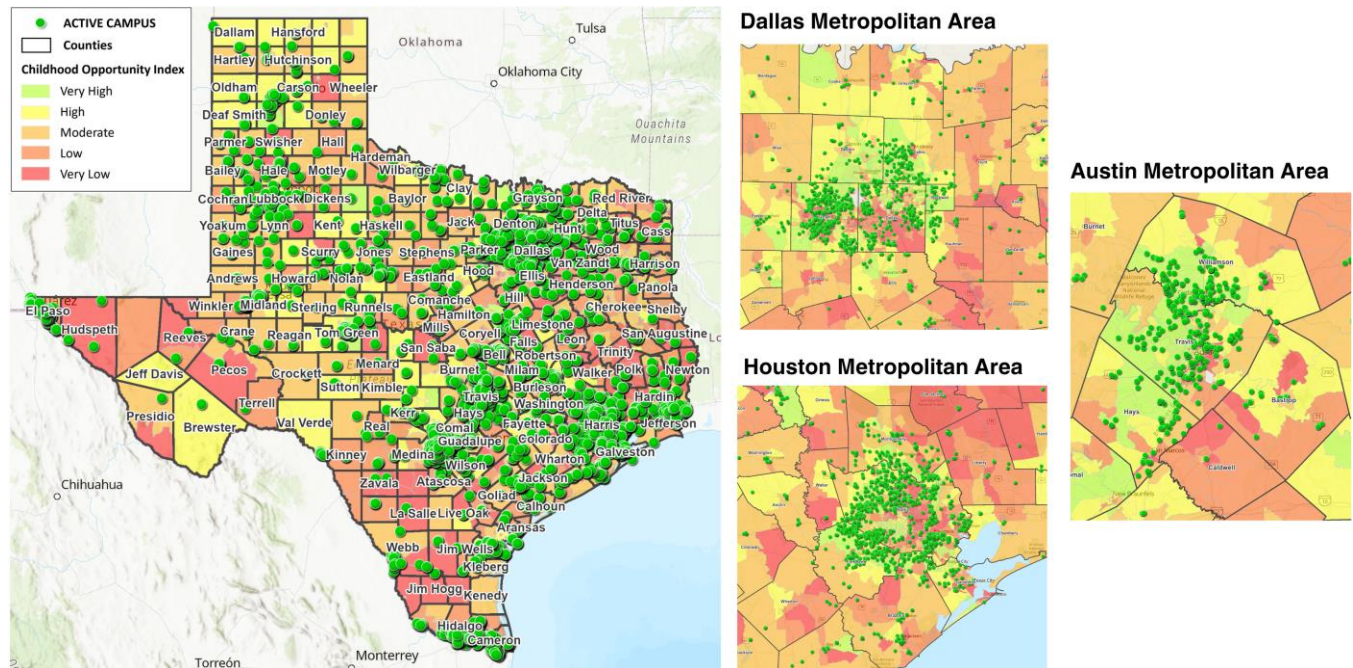
Figure 15. Enrolled TCHATT Campuses by Rural-Urban Continuum at the Census Block Group Level^{a,b}



(a) Data source: TCHATT Campus List as of August 31, 2023. (b) 2010 Rural-Urban Commuting Area Codes, USDA Economic Research Service, U.S. Department of Agriculture. RUCA Codes 1-3 = Urban; 4-6 = Large Town; 7-9 = Small Town; 10 = Completely Rural.

Dashboard available at: <https://uthealthsph.maps.arcgis.com/apps/webappviewer/index.html?id=b8efb89bf0a9464186b1772edd827e1d>

Figure 16. Enrolled TCHAT Campuses by Childhood Opportunity Index at the Census Block Group Level^{a,b}

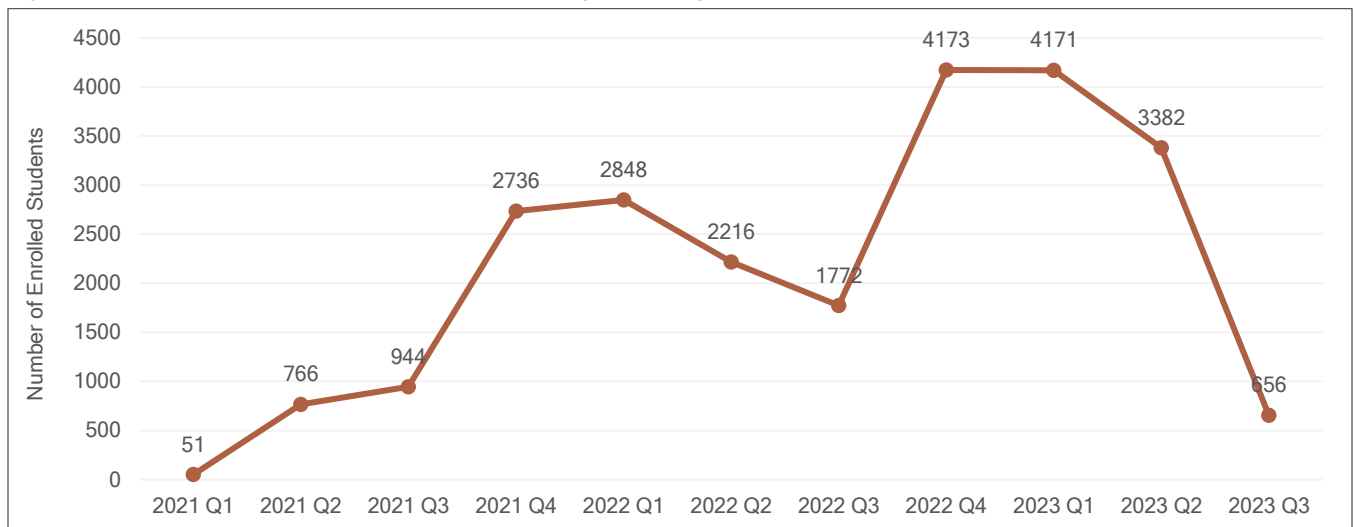


(a) Data Source: TCHAT Campus List as of August 31, 2023. (b) Data source: 2022 Child Opportunity Index 2.0 database (<https://diversitydatakids.org/>). Dashboard available at: <https://uthealthsph.maps.arcgis.com/apps/webappviewer/index.html?id=b8efb89bf0a9464186b1772edd827e1d>

TCHAT Reach: Student Enrollment

As of August 2023, 23,715 students had enrolled in the TCHAT program. Figure 17 shows the number of students who enrolled in TCHAT by quarter. Overall, there was an upward trend in enrollment over time. As expected, enrollment was lowest in quarter 3 (June – August) of each year (due to summer break) and highest in quarter 1 (January – March) and quarter 4 (October – December) of each year.

Figure 17. Students Enrolled in TCHAT by Quarter^a (n= 23,715)

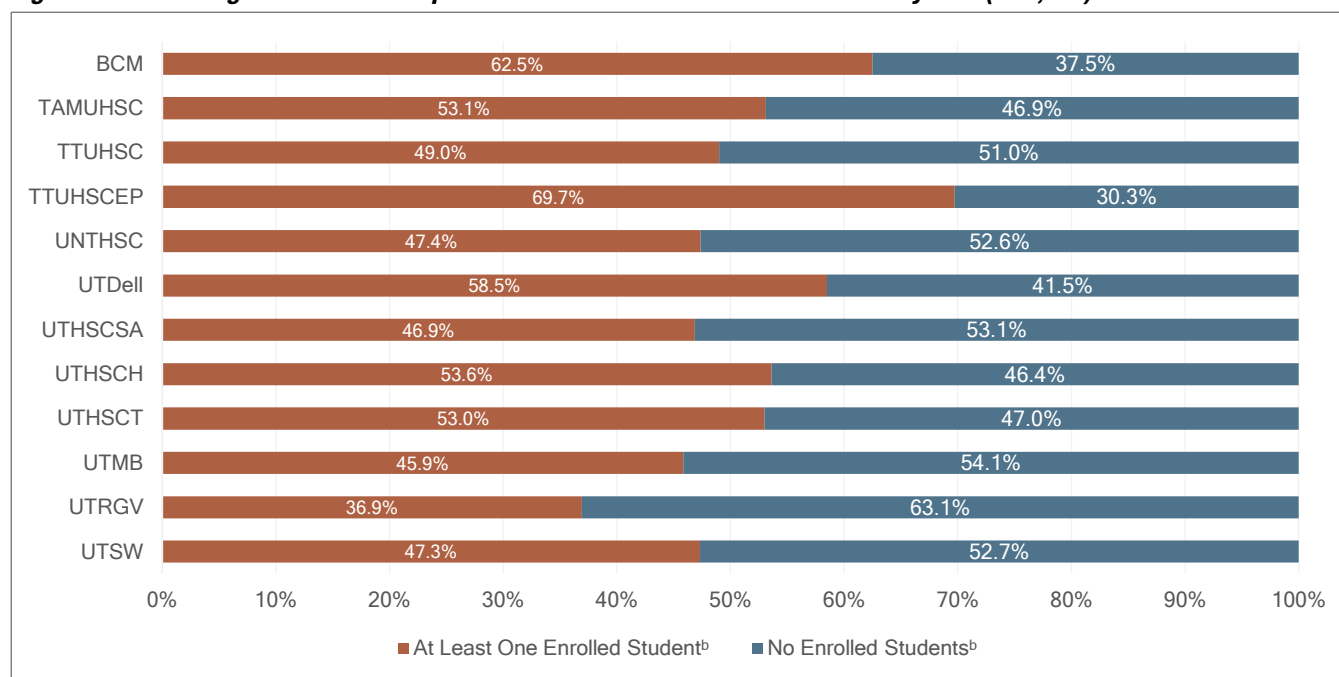


(a) Data Source: TCHAT Referral-level Extract, Trayt (March 24, 2021-August 31, 2023). Quarters correspond to calendar years (Q1 = January – March; Q2 = April – June; Q3 = July – September; Q4 = October – December). Therefore, data is incomplete for 2023 Q3 (missing September 2023).

To better understand program usage among TCHAT campuses, we examined student enrollment in TCHAT by campus. Figure 18 presents the percentage of campuses with at least one student enrolled

in TCHAT by HRI. Overall, 50.5% of active TCHAT campuses had enrolled at least one student in TCHAT. Enrollment varied by HRI, ranging from 36.9% of campuses with at least one student enrolled in TCHAT (UTRGV) to 69.7% of campuses with at least one student enrolled in TCHAT (TTUHSCEP).

Figure 18. Percentage of TCHAT Campuses With At Least One Enrolled Student by HRI^a (n=5,546)



(a) Data source: TCHAT Campus List as of August 31, 2023. Includes campuses with MOU status of "Active" only. (b) Data source: TCHAT Referral-level Extract, Trayt (March 24, 2021-August 31, 2023).

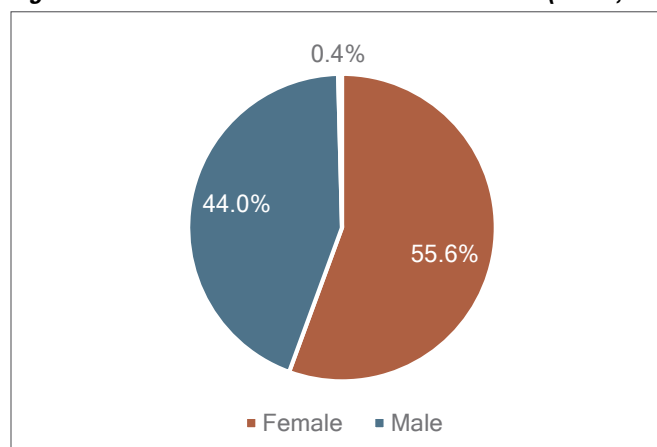
TCHAT Reach: Characteristics of Enrolled Students

The following figures present characteristics of students who enrolled in TCHAT. More female than male students enrolled (55.6% vs. 44.0%, respectively) (

Figure 19). Almost all students were between the ages of 6 and 12 years (48.2%) or 13 and 18 years of age (48.2%) (Figure 20). Nearly one-third were Figure 21).

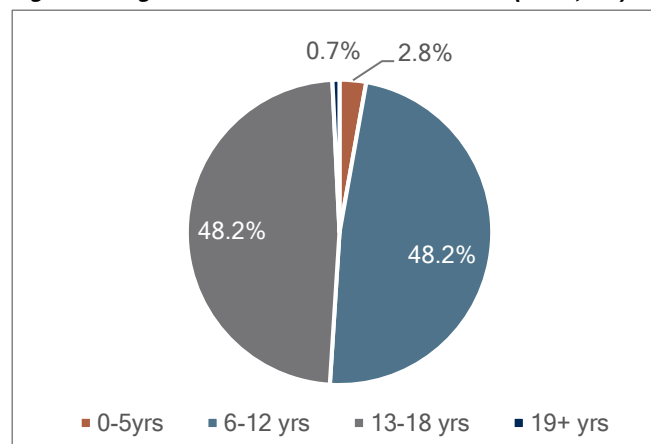
Non-Hispanic (NH) white and almost half identified as Hispanic (Figure 20). Age missing from 67 students.

Figure 19. Gender of Students Enrolled in TCHAT^a (n= 23,715)



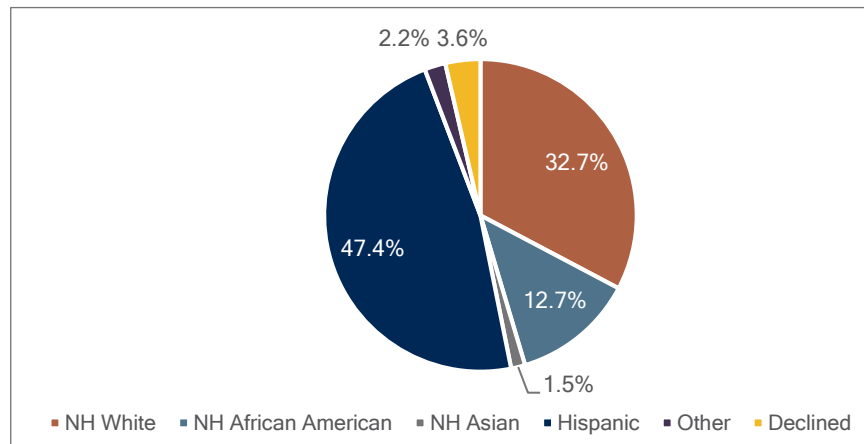
(a) Data Source: Trayt TCHAT Referral-level Extract (March 24, 2021-August 31, 2023).

Figure 20. Age of Students Enrolled in TCHAT^a (n=23,715)



(a) Data Source: Trayt TCHAT Referral-level Extract (March 24, 2021-August 31, 2023). Age missing from 67 students.

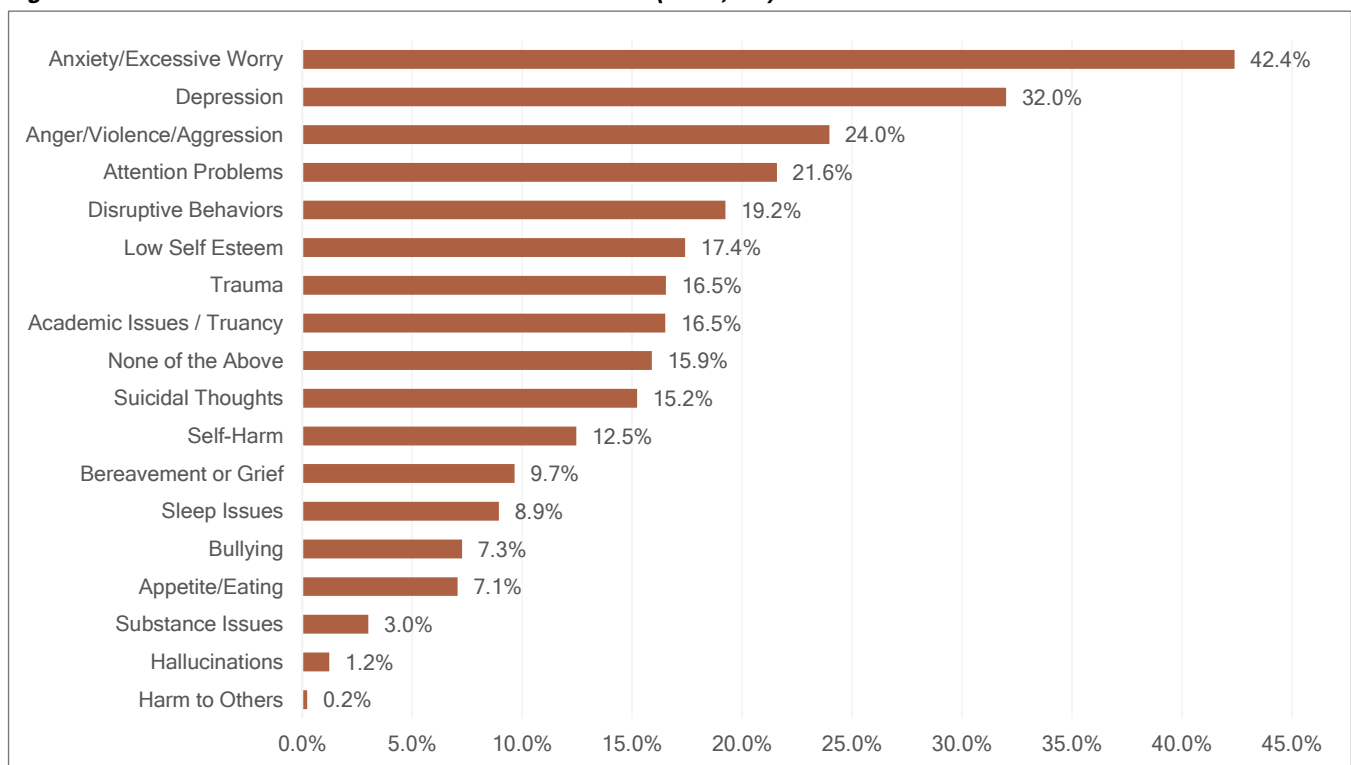
Figure 21. Race and Ethnicity of Students Enrolled in TCHAT^{a,b} (n=23,715)



(a) Data Source: Trayt TCHAT Referral-level Extract (March 24, 2021-August 31, 2023).

Error! Reference source not found. presents referral reasons reported at enrollment. Referral reasons are listed in decreasing order with the most-commonly reported reason being anxiety/excessive worry (reported by 42.4% of enrolled referrals) followed by depression (reported by 34.0% of enrolled referrals).

Figure 22. TCHAT Referral Reasons for Enrolled Students (n=23,715)^{a,b}

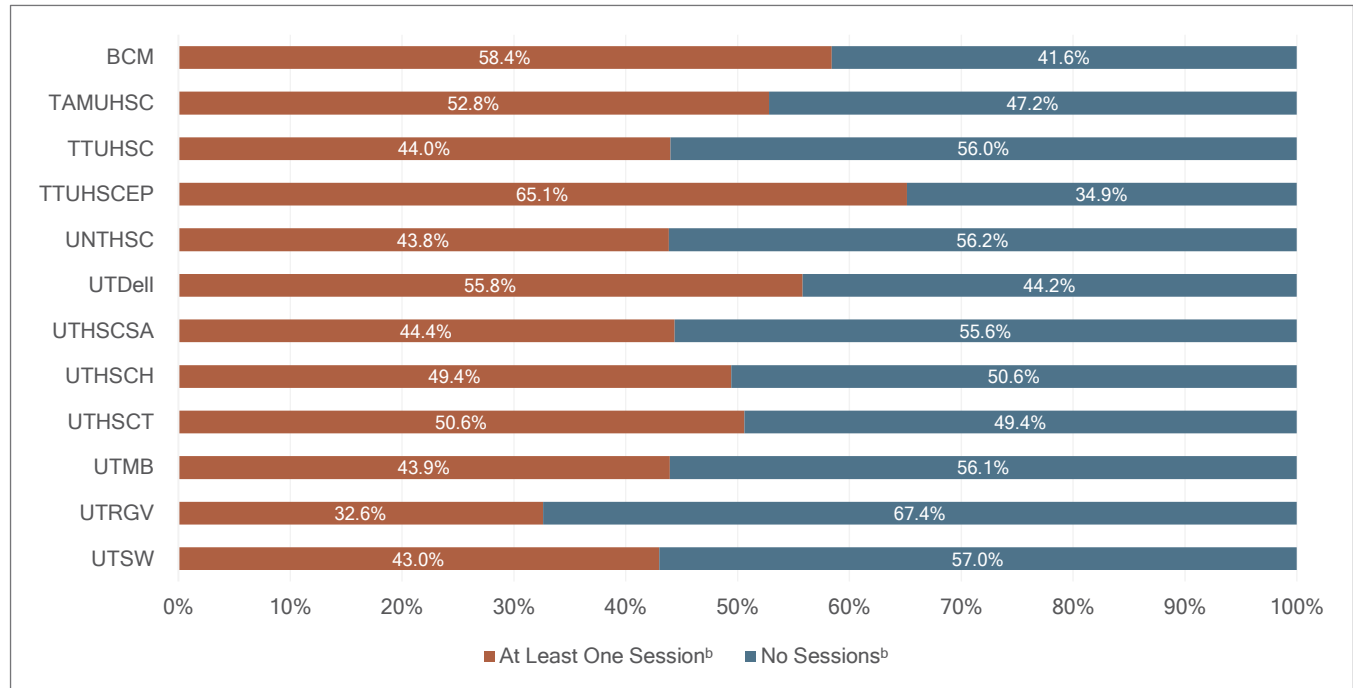


(a) Data Source: Trayt TCHAT Referral-level Extract (March 24, 2021-August 31, 2023). (b) Referrals may have more than one reason listed. (c) Data Source: Trayt TCHAT Session-level Extract (March 24, 2021-August 31, 2023)

TCHATT Service Delivery

As of August 31, 2023, at least one student at 47.0% of active campuses had completed at least one TCHATT session. Figure 23 presents the percentage of enrolled campuses with at least one session across HRIs. TTUHSCEP had the highest percentage of enrolled campuses with at least one TCHATT session (65.1%), and UTRGV had the lowest percentage of enrolled campuses with at least one TCHATT session (32.6%).

Figure 23. Percentage of TCHATT Campuses with at Least One Session by HRI^a (n=5,546)



(a) TCHATT Campus List as of August 31, 2023. Includes campuses with MOU status of "Active" only. (b) Data source: Trayt TCHATT Session-level Extract (July 1, 2021-August 31, 2023).

As of August 31, 2023, 18,198 students were served through TCHATT. There were 86,284 TCHATT sessions, with an average of 4.7 sessions per student served. Table 7 presents a breakdown of the number of sessions and students served by HRI.

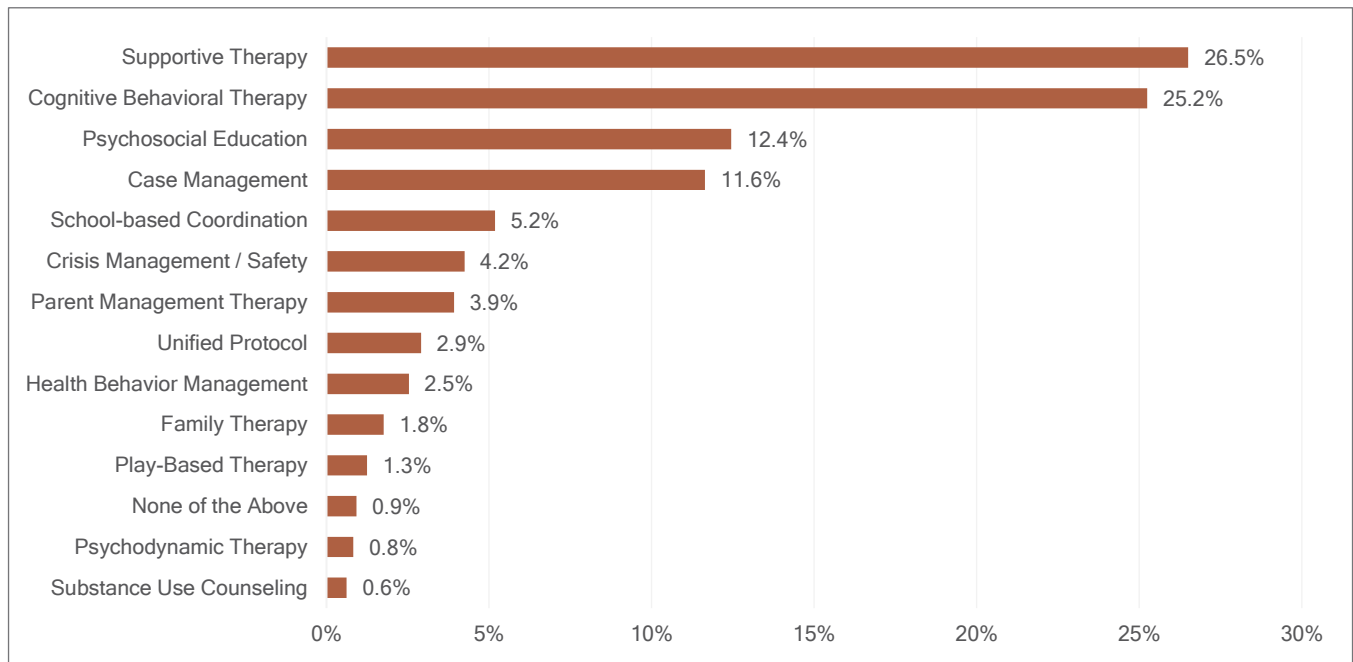
Table 7. TCHATT Students Served and Number of Sessions by HRI

HRI	Number of Students Served ^a n (%)	Number of Sessions ^a n (%)	Sessions per Student Served Mean
HRI	18,198	86,284	4.7
BCM	1,355	5,979	4.4
TAMUHSC	1,817	8,003	4.4
TTUHSC	1,882	9,419	5.0
TTUHSCEP	1,052	5,136	4.9
UNTHSC	1,120	5,541	4.9
UTDell	1,742	7,210	4.1
UTHSCSA	2,194	15,337	7.0
UTHSCH	2,756	10,502	3.8
UTHSCT	644	2,821	4.4
UTMB	1,079	6,096	5.6
UTRGV	741	3,832	5.2
UTSW	1,816	6,408	3.5

(a) Data source: Trayt TCHAT Session-level Extract (July 1, 2021-August 31, 2023).

The most common intervention types provided in TCHAT sessions were supportive therapy (26.5%) and cognitive behavioral therapy (25.2%) (Figure 24). A little over 10% of sessions involved case management.

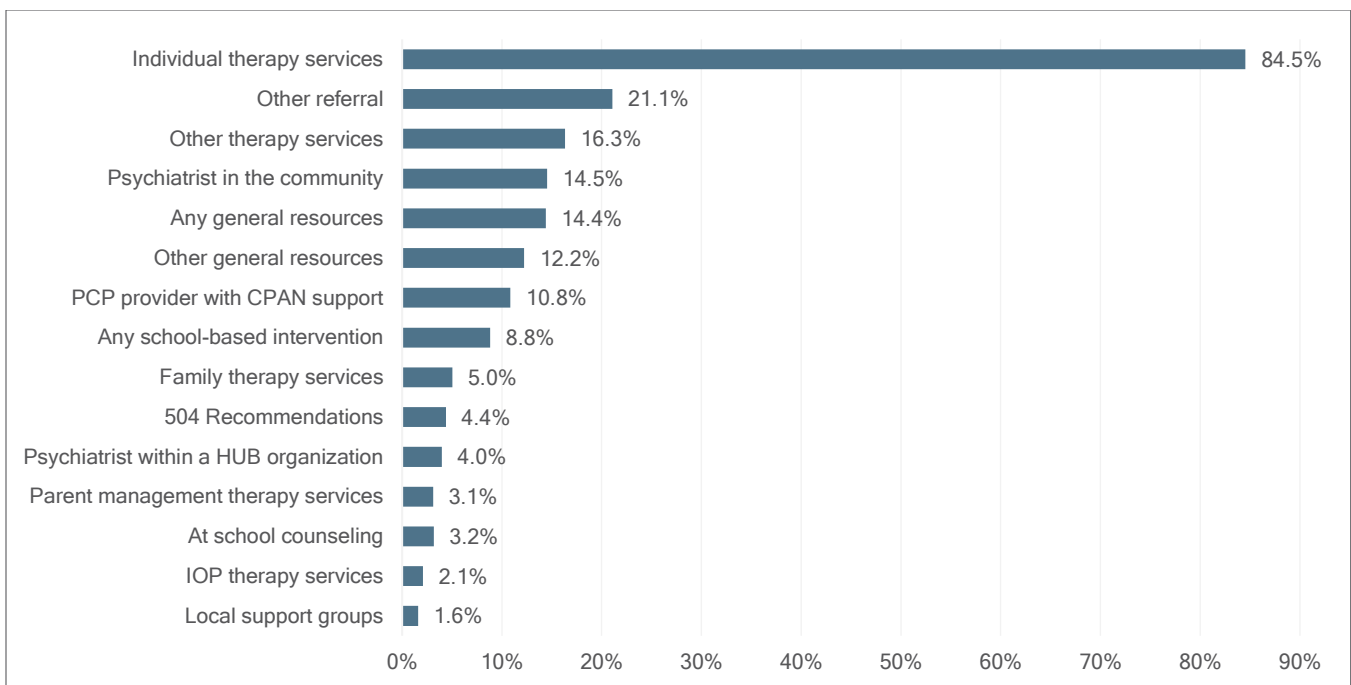
Figure 24. Intervention Type Provided in TCHAT Sessions^a (n=86,284)



(a) Data Source: Trayt TCHAT Session-level Extract (July 1, 2021-August 31, 2023). TCHAT Sessions may include more than one intervention type.

Following TCHAT, 11,268 students were referred for additional services. Over 80% of these students (84.5%) were referred to individual therapy services and 14.5% were referred to a psychiatrist in the community (Figure 25).

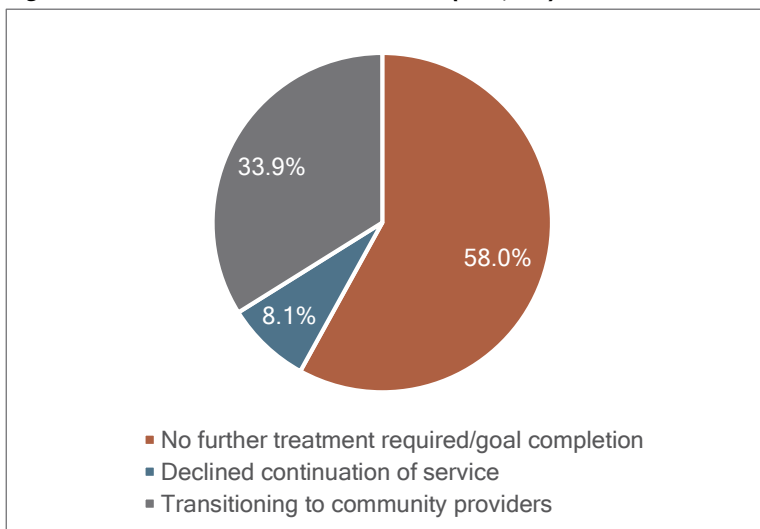
Figure 25. Recommended Ongoing Care Referrals^a (n=11,268)



(a) Data source: Trayt TCHATT Session-level Extract (July 1, 2021-August 31, 2023).

As of August 2023, 6,768 students had completed TCHATT services. The most common reason reported for ending TCHATT services was that the student completed the necessary TCHATT sessions and no further treatment was required (Figure 26). One-third of students ended TCHATT care to transition to a community provider, and fewer than 10% of students declined continuation of service.

Figure 26. TCHATT End Service Reason^a (n=6,768)



(a) Data Source: Trayt TCHATT Session-level Extract (July 1, 2021-August 31, 2023).

COST ANALYSIS

Introduction

The FY 2021 economic evaluation focused on developing time-driven activity-based cost (TDABC) models for estimating the cost of the pre-implementation phase of CPAN and TCHAT for each HRI, prior to “going live,” with the provision of services. The outcome measure was the number of clinics enrolled in CPAN, and the number of schools enrolled in TCHAT. The FY 2022 economic evaluation focused on the development and preliminary application of a TDABC cost model for the estimation of the direct clinical personnel costs of implementing the CPAN and TCHAT programs. The current economic evaluation for FY 2023 followed the methodology implemented in the FY 2022 evaluation with some variations. The FY 2022 methodologies were used because the data collected by the previous evaluation team for FY 2022 and three are similar. In addition, it was important to see how costs change over time due to changes in personnel, time spent per activity, salaries, volume of patients served, type of patient population, and non-personnel costs between FY 2022 and FY 2023 without changing the methodologies for the 12 HRIs. There has been an increase of nearly 50% in CPAN services and over 250% in TCHAT services provided from FY 2022 to FY 2023. Consequently, it is important to understand how this change has affected the costs between the two years.

There is lack of data on the direct effects of “improved access to mental health services” on: (1) patient mental health outcomes and (2) provider treatment quality indicators. Hence, this report used the “number of consults provided” as the primary intermediate outcome metric for the economic evaluation. Research supports the link between access to peer-to-peer consultation and school-based tele-mental health services and quality of pharmacy prescribing, reduced health care utilization, and cost (Perry et al. 2019, Am Academy of Child and Adolescent Psychiatry 2017, Garofalo et al. 2021, Marcin et al. 2005). During FY 2023, programs continued efforts to grow and expand their services by recruiting additional clinics to CPAN and additional schools to TCHAT. Thus, substantial resources were devoted to recruiting, onboarding, and training healthcare providers and school counselors. The providers and counselors were trained on program-specific tasks associated with service provision and on best practices to gain the greatest value from the programs. All of this effort was aimed at increasing access to quality mental health services for adolescents.

In FY 2023, we included non-personnel and certain administrative costs required for service delivery. As the programs learn, adapt, and gain scale in FY 2024, we will make the following modifications:

- (1) More details on administrative overhead head costs will be collected and added to the analyses;
- (2) Better matching of personnel salaries with specific tasks performed will be accomplished;
- (3) Details around personnel working on sub-contracts will be obtained; and
- (4) Variations in time spent on different program services and tasks will be examined in detail with the intent to resolve any variations due to reporting inconsistencies.

In addition, the software used to obtain survey data will be changed to automate the data collection and cleaning process. Our aim is to create a unified multi-year database, which can be used for advanced econometric analyses examining the investment, growth and outcomes of the programs over time. The TDABC values (wage rates, average activity times, mix of activities, and personnel) will continue to serve as key parameters in decision analytic models for assessing uncertainty in the cost-per-consult estimates and exploring the efficiency of alternative staffing patterns and other service delivery strategies.

During the current year (Year 4) and upcoming years, we will:

- (1) Update our literature search to document the link between improving access to mental health services and quality of mental health care, patient health status, healthcare utilization, and healthcare cost;
- (2) Collaborate with the UTHealth Houston School of Public Health Center for Health Care Data to determine the feasibility of assessing the impact of the TCMHCC programs on population-based child and adolescent self-harm rates and other mental health problems suffered by Texas adolescents; and
- (3) Examine the feasibility of linking Texas Education Agency data on school-level absence rates to determine how these rates compare among schools that have and have not instituted the TCHATT program.

Methods

Data Sources:

The following analyses incorporate information from CPAN and TCHATT's Trayt Encounter Data, the CPAN/TCHATT HRI consult time survey, HRI budget reviews, and HRI detailed financial reports. The clinical cost was based on the CPAN/TCHATT HRI consult time surveys and Trayt encounter records. Each HRI's non-personnel cost, including facilities, supplies, travel, maintenance and operations, subscriptions, books, subcontract grant awards if applicable, and total expenditures for both their CPAN and TCHATT programs were collected from the HRI detailed financial reports for FY 2023 (FY23).

Cost Model and Activity Time:

The TDABC model of direct clinical care personnel time for service implementation was based on detailed process maps describing the mental healthcare delivery cycle developed by our multidisciplinary team (see **Appendix A** for Process Map examples for HRIs, clinics, and schools). The detailed process maps guided the development of the HRI consult time survey instruments (see **Appendix B** for an example of the time survey). HRI consult time surveys completed by the program manager were used for estimating the average times per consult to estimate the time required by support staff and CAPs to complete CPAN and TCHATT encounter processes. Respondents were asked to modify the personnel and activity descriptions, if necessary, to fit their staffing mix and approach to service delivery. These HRI consult time surveys allowed for the capture of variability in processes used across the HRIs. Cost methods are illustrated below with HRI CPAN and TCHATT examples showing activity times by associated personnel, and cost rates derived from the time surveys (**Appendix B, Table 2 and Table 3**) of support staff and CAPs.

Unit Values for Personnel:

The adjusted cost per hour for all personnel involved in direct clinical care for the programs was derived from program budget review data on annual salaries, fringe benefit rates, and University policies on annual holidays and vacation days. The hourly rates were further adjusted for the personnel's expected productivity (90%) (Urban et al. 1990; Burda et al. 2016).

Table 8 provides an example of the adjusted salary plus fringe benefits per hour for one HRI providing CPAN consults. The adjustment increases the nominal hourly cost rate plus the fringe benefit rate (ranging from 20-30% as reported in each HRI's budget review) by adjusting for the actual time available for work tasks during the year. Notably, budget data came from each HRI's budget review. However, if the HRI consult time survey used a personnel role/title that did not exactly match the roles listed in the HRI's budget review to get their specific salary, we selected the budget review personnel that best approximated the HRI consult time survey personnel (e.g. we matched the Behavioral Health Consultant on the HRI consult time survey with the salary of the Licensed Clinical Social Worker listed on the budget review). If the budget review included multiple personnel with the same position, we used the average salary of the individuals with that position to estimate their hourly cost.

Cost per Consult:

Direct clinical personnel times were converted to costs by multiplying the time per activity within a typical consult by the adjusted cost rate for the type of personnel providing the service and summing costs for all personnel/activities. **Table 9** and **Table 10** show examples of the TDABC model personnel cost estimates for a CPAN and TCHATT program, respectively. Column 1 describes the activities and associated staff levels for a typical consult. Column 2 shows the probability that a given staff level provides the consult. Columns 3-5 show values for computing activity costs. Column 6 shows the probability that the activity is done for a typical consult. The last column is the expected activity cost derived from multiplying the cost (Column 5) by the two probabilities. The sum of the last column provides the expected direct clinical personnel cost of the typical consult, which is approximately \$145 for CPAN and \$423 for TCHATT for the example HRIs in **Table 9** and **Table 10**.

Table 8: Adjusted Salary per Hour (CCR) example for one CPAN HRI

Title	Responsibility	Base Salary (\$000)	Fringe Benefit %	Annual Salary + Fringe (\$000)	Hourly Salary + Fringe \$	Vacation & Holidays hours	Annual hours at work	Annual hours available for tasks*	Proportion Paid time available for tasks**	Adjusted salary per hour \$***
Asst/Assoc	Psychiatrists	\$250	25	312.5	150.24	216	1864	1677.6	0.807	186.28
Division Head	Psychiatrists	\$275	25	343.75	165.26	216	1864	1677.6	0.807	204.91
Instructor	LCSW	\$65	30	84.5	40.63	216	1864	1677.6	0.807	50.37
Administrator	Gen Admin	\$140	30	182.0	87.50	216	1864	1677.6	0.807	108.49
Grant Admin	Gen Admin	\$100	30	130.0	62.50	216	1864	1677.6	0.807	77.49
Coordinator	Gen Admin	\$65	30	84.5	40.63	216	1864	1677.6	0.807	50.37
Data Manager	Gen Admin	\$90	30	117.0	56.25	216	1864	1677.6	0.807	69.74
HR	Gen Admin	\$60	30	78.0	37.50	216	1864	1677.6	0.807	46.49
Accounting	Gen Admin	\$65	30	84.5	40.63	216	1864	1677.6	0.807	50.37

*Annual Hours Available for Tasks = Annual Hours at Work * Productivity Rate (0.90).

**Proportion of Paid Time Available for Tasks = Annual Hours Available for Tasks / Total Hours per Year (2080 hours).

***Adjusted Salary (CCR) = Salary per Hour / Proportion of Paid Time Available for Tasks

Table 9: Direct Clinical Care Cost Per CPAN Consult/Activity

Direct Clinical Care Cost Per Consult/Activity							
Activities	Probability of Staff Present	CCR \$ (hour)	Time (min)	Time (hour)	Cost \$	Probability of Occurrence	Expected Cost \$
Answer PCP call and collect PCP and patient information and reason for call; enter into Trayt Behavioral Health Specialist	1	\$50.369576	10	0.1666667	8.3949292	1	8.394929264
Review patient notes in Trayt prior to consultation (if PCP has called about the patient before) Psychiatrist	1	\$186.278016	10	0.1666667	31.046336	0.082	2.545799555
Contacting appropriate HRI team member for consult; transferring call to psychiatrist/therapist/resource coordinator or setting up a call back time Behavioral Health Specialist	1	\$50.369576	30	0.5	25.18478779	1	25.18478779
Conducting consults involving assessment, diagnosis, behavioral management, or medication management (i.e., reviewing case information in Trayt, obtaining information from PCP about patient, providing feedback to PCP, documenting consultation visit notes in Trayt, etc.) Psychiatrist	1	\$186.278016	30	0.5	93.1390081	1	93.1390081
Conducting consults involving referral assistance (i.e., identifying appropriate referrals, communicating referral information to PCPs, documenting notes in Trayt, etc.) Behavioral Health Specialist	1	\$50.369576	10	0.166666667	8.394929264	0.46038864	3.864930065
Conducting consults requiring general resources (e.g., identifying appropriate resources, communicating resource information to PCPs, documenting notes in Trayt, etc.) Behavioral Health Specialist	1	\$50.369576	105	1.75	88.14675727	0.049327354	4.348046323
Updating the referral database Behavioral Health Specialist	1	\$50.369576	20	0.333333333	16.78985853	0.46038864	7.72986013
(Please insert any additional activities below for each staff member, including a brief description of the activity and estimated time in the appropriate column)							
TOTAL PERSONNEL COST							145.2073612

Table 10: Direct Clinical Care Cost Per TCHAT Consult/Activity

Direct Clinical Care Cost Per Consult/Activity							
Activities	Probability of Staff Present	CCR \$ (hour)	Average Time (min)	Average Time (hour)	Cost \$	Probability of Occurrence	Expected Cost \$
<u>Initial Contact</u>							
Review and process completed referral forms of students in need of TCHAT services							
Program Coordinator	0.5	\$44.10825	10	0.166667	7.351374	1	3.67568749
School Liaison SW	0.5	\$58.11874	10	0.166667	9.686456	1	4.84322842
Follow up with school counselors to obtain missing or additional information on students							
Program Coordinator	0.5	\$44.10825	10	0.166667	7.351374	1	3.67568749
School Liaison SW	0.5	\$58.11874	10	0.166667	9.686456	1	4.84322842
<u>Consent to Care & Scheduling</u>							
Reach out to families to provide more information on TCHAT services							
School Liaison SW	1	\$58.11874	20	0.333333	19.372913	1	19.3729136
Obtain written consent for care from families							
School Liaison SW	1	\$58.11874	15	0.25	14.529685	1	14.5296852
Enroll student into Trayt/EMR							
School Liaison SW	1	\$58.11874	10	0.166667	9.686456	1	9.68645684
Work with schools and/or families to schedule initial TCHAT session; conduct reminder calls for initial TCHAT session							
Patient Services Representative	1	\$25.92483	10	0.166667	4.320805	1	4.32080551
<u>Providing TCHAT Services</u>							
Reviewing clinical information on student prior to session (e.g., from referral form, EMR, etc.)							
Psychiatrist	0.5	\$203.3154	10	0.166667	33.885908	1	16.9429542
Behavioral Health Consultant	0.5	\$51.20649	10	0.166667	8.5344142	1	4.26720712
Assign assessments and questionnaires to students/families							
Medical Assistant	1	\$23.28624	10	0.166666667	3.881040375	1	3.881040375
Conduct intake and initial assessment with students/families; document visit in EMR/Trayt; develop treatment plan for students							
Medical Assistant	1	\$23.28624	90	1.5	34.92936338	1	34.92936338
Schedule follow-up sessions for students; conduct reminder calls for follow-up sessions							

Patient Services Representative	1	\$25.92483	30	0.5	12.96241655	1	12.96241655
Conduct follow-up TCHAT sessions with students/families; document visit in EMR/Trayt							
Psychiatrist	0.4160804	\$203.31545	60	1	203.3154506	1	84.59557444
Behavioral Health Consultant	0.5839195	\$51.20649	60	1	51.20648546	1	29.9004704
Communicate with school counselors; provide status updates on students receiving TCHAT services							
Program Coordinator	0.5	\$44.10825	45	0.75	33.08118741	1	16.54059371
School Liaison SW	0.5	\$58.11874	45	0.75	43.58905579	1	21.7945279
Determine ongoing care recommendations for students; document recommendations and care type in EMR/Trayt; communicate recommendations to students/families							
Psychiatrist	0.4160804	\$203.31545	60	1	203.3154506	1	84.59557444
Behavioral Health Consultant	0.5839195	\$51.20649	60	1	51.20648546	1	29.9004704
Identify referral for students (if needed); assist in getting the referral processed and student established							
Case Manager	1	\$22.91273	60	1	22.91273247	0.194974874	4.467407136
Other Activities (Please specify below and enter times)							
TOTAL PERSONNEL COST							409.7252932

Results

CPAN

Table 11 and **Figure 27**, **Figure 28**, and **Figure 29** summarize the costs of implementing the CPAN programs for 12 HRIs for the fiscal year 2023 (September 1, 2022, through August 31, 2023). Across the 12 HRIs, there were 12,748 consults performed (an average of 1,062 per HRI). This constituted an increase of about 50% from FY 2022, when 8,622 consults were performed in total.

The total FY23 CPAN expenditures by HRI, based on each HRI's detailed financial report, is shown in **Figure 27**, with the average HRI spending \$997,000 in FY 2023, ranging from a high of \$1.9 million at UTSW with a low of \$679,000 at UTHSCT. These expenditures included subcontract costs for certain HRIs (indicated with "+" in **Table 11** and **Figure 27**-**Figure 28****Figure 29**). The average direct clinical personnel cost per consult for the 12 programs was \$161, with a range from \$64 (TAMU) to \$356 (TTUHSCEP). This average of \$161 in direct personnel cost per CPAN consult had decreased about 20% from the FY 2022 figure of \$199 across the 12 HRIs, suggesting that as the program scaled up in many HRIs, the average cost per consult decreased. Across all programs, the average direct clinical personnel cost per consult (\$161) only comprises about 17 percent of the total average cost per consult (\$938) for CPAN. Therefore, the bulk of resources were devoted to other aspects of the program, including planning, marketing, enrollment of clinics, training, and education of primary care providers and their staff, and general program administration.

Figure 28 describes how the staffing patterns in a program affect the direct clinical personnel costs per consult. On average across the 12 HRIs, about 58% of direct personnel clinical costs are due to CAP time costs. This ranged from a high of 86% of direct personnel costs being CAP time costs (\$182) in UTHSCH to a low of 16% of direct personnel costs associated with CAP time costs (\$23) in UTHSCSA. Behavioral health consultant/specialists and other personnel time costs contributed on average 33% and 9% of the total direct personnel clinical costs across the 12 HRIs, respectively. The correlation between the use of CAPs and direct clinical personnel cost per consult is not linear, although several of the highest-cost per consult programs have a high proportion of the direct clinical personnel cost devoted to CAPs, including TTUHSCEP (\$231 or 65% of total direct personnel clinical costs), UTHSCH (\$182 or 86% of total direct personnel clinical costs), and UTRGV (\$90 or 49% of its total direct personnel clinical costs). However, CAP use is also high in the several lower total-cost per consult CPAN programs, including the lowest total-cost per CPAN consult clinic of Dell (\$95 or 62% of its total direct personnel clinical costs), and UTHSCT (\$58 or 79% of its total direct personnel clinical costs).

Figure 29 demonstrates the total costs per CPAN consult for each HRI, categorized into direct personnel, non-personnel, and residual costs. The average non-personnel cost per consult was \$313, with a range of \$34 (UTHSCH) to \$1,461 (UNTHSC) which had only 578 consults vs. the HRI-average of 1,062 and encompassed subcontract grants. The average residual cost per consult was \$465. Accordingly, the average total cost per consult, excluding system-level COSH costs, was **\$938 per CPAN consult**, with a range of \$482 of total cost per consult at DELL to \$3,579 of total cost per consult for UTRGV. The average total cost per consult in FY 2023 across all HRIs, constituted a 27% decrease from FY 2022 (\$1,283).

In summary, lower costs per consult were driven by a relatively high number of consults and a somewhat lower intensity of CAP staffing. TAMU was a low-cost HRI with the lowest direct clinical cost per consult (\$64), a low non-personnel cost per consult (\$155), and a low total cost per consult (\$665), resulting from 1,099 consults performed (vs. the HRI-average of 1,062). Other relatively low-cost programs included DELL (with \$482 per consult and higher-than-average 2,242 consults performed), UTHSCT (\$613 per consult with 1,108 consults, but with a low non-personnel cost), UTMB (\$618 per consult with a higher-than-average 1,458 consults performed and low non-personnel cost), and UTSW (\$871 per consult with a higher-than-average 2,171 consults performed). Higher-cost HRIs included UTRGV (\$3,579 per consult) with a high direct clinical cost per consult (\$184), the highest non-personnel cost per consult (\$2,032), a lower-than-average number of consults performed (756 vs. the HRI-average of 1,062), and a high residual cost per consult (\$1,363). Our second-highest cost HRI (TTUHSC) had its cost driven by having the highest residual costs per consult (\$1,576), one of the highest non-personnel costs per consult (\$373), and a lower-than-average number of consults performed (475 vs. the HRI-average of 1,062).

Table 11. Cost Per Consult and Enrolled Provider By HRI, CPAN Program

Program	Direct Clinical Personnel Cost (\$)*	Non-personnel Cost from Budget Spend (\$)**	Direct Clinical Personnel Cost+ Non-personnel Budget Spend (\$)	Residual--Total Budget Spend Minus (Direct Clinical Personnel Cost+ Non-personnel) (\$)***	Number of Consults**	Direct Clinical Personnel Cost Per Consult (\$)	Total Estimated Cost Per Consult (\$)	Total Budget Spend	CPAN Provider Enrollment (N)***	Total Budget Spending Per Enrolled CPAN Provider
UTSW+	508,695	1,454,308	1,963,003	-71,023	2,171	234	871	1,891,980	2,651	714
UTRGV	61,317	678,638	739,956	455,370	334	184	3,579	1,195,326	938	1,274
UTHSCSA	170,417	172,155	342,572	770,398	1,170	146	951	1,112,970	640	1,739
DELL+	346,388	96,569	442,957	637,322	2,242	154	482	1,080,280	1,151	939
TTUHSC	39,223	177,104	216,326	748,555	475	83	2,031	964,881	1,129	855
UTMB	173,922	64,349	238,271	663,140	1,458	119	618	901,411	671	1,343
UNTHSC+	58,359	844,381	902,740	-15,297	578	101	1,535	887,443	812	1,093
TTUHSC-EP	269,139	225,872	495,010	357,624	756	356	1,128	852,634	562	1,517
UTHSCH	99,528	15,852	115,380	723,467	473	210	1,773	838,848	926	906
BCM	128,363	46,000	174,363	651,754	884	145	935	826,117	1,439	574
TAMU	70,126	170,559	240,686	490,262	1,099	64	665	730,948	1,111	658
UTHSCT	121,816	45,121	166,938	512,621	1,108	110	613	679,559	1,413	481
Total	2,047,293	3,990,908	6,038,202	5,924,193	12,748	161	938	11,962,395	13,443	890

*Estimated based on HRI consult time survey Data. Adjusted productivity rate = 0.9

**Based on non-personnel spending details, including subawards, provided by the HRI in their Detailed Financial Reports for FY 2023.

***All spending that could not be identified from spending data or attributed to direct personnel cost for delivering consults.

*HRIs with SubAward (Grants). For example, UNTHSC subcontracts with Acclaim Physician Group for CPAN and TCHATT.

**Based on Trayt data filtering by HRI and then filtering by Consult Resolved date (September 1, 2022 to August 31, 2023).

***Based on Trayt CPAN Clinic Staff Directory (May 1, 2020 - August 31, 2023).

Figure 27. Direct Clinical Personnel Cost, Non-Personnel & Other (Residual) Cost Per Consult By HRI, CPAN Program

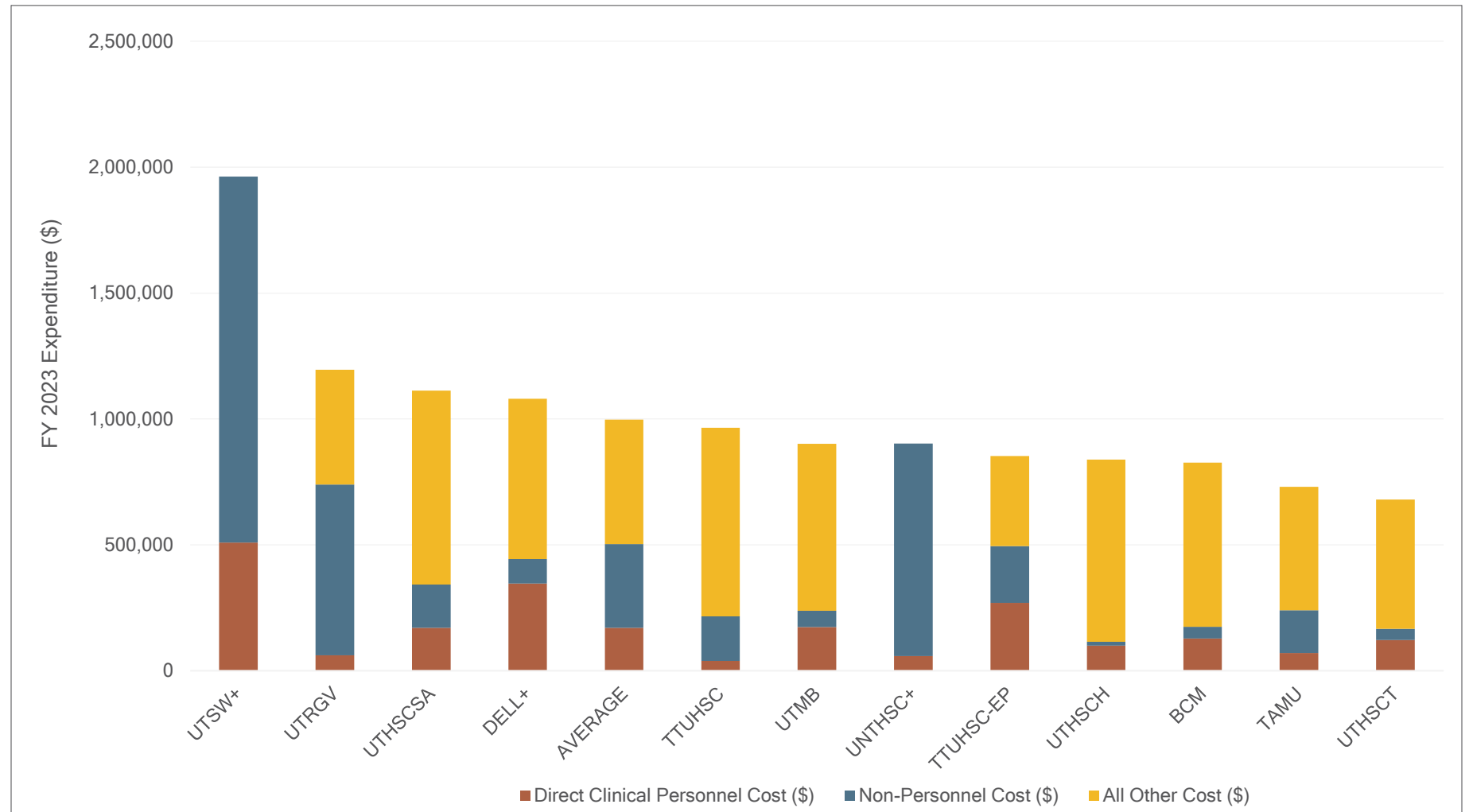
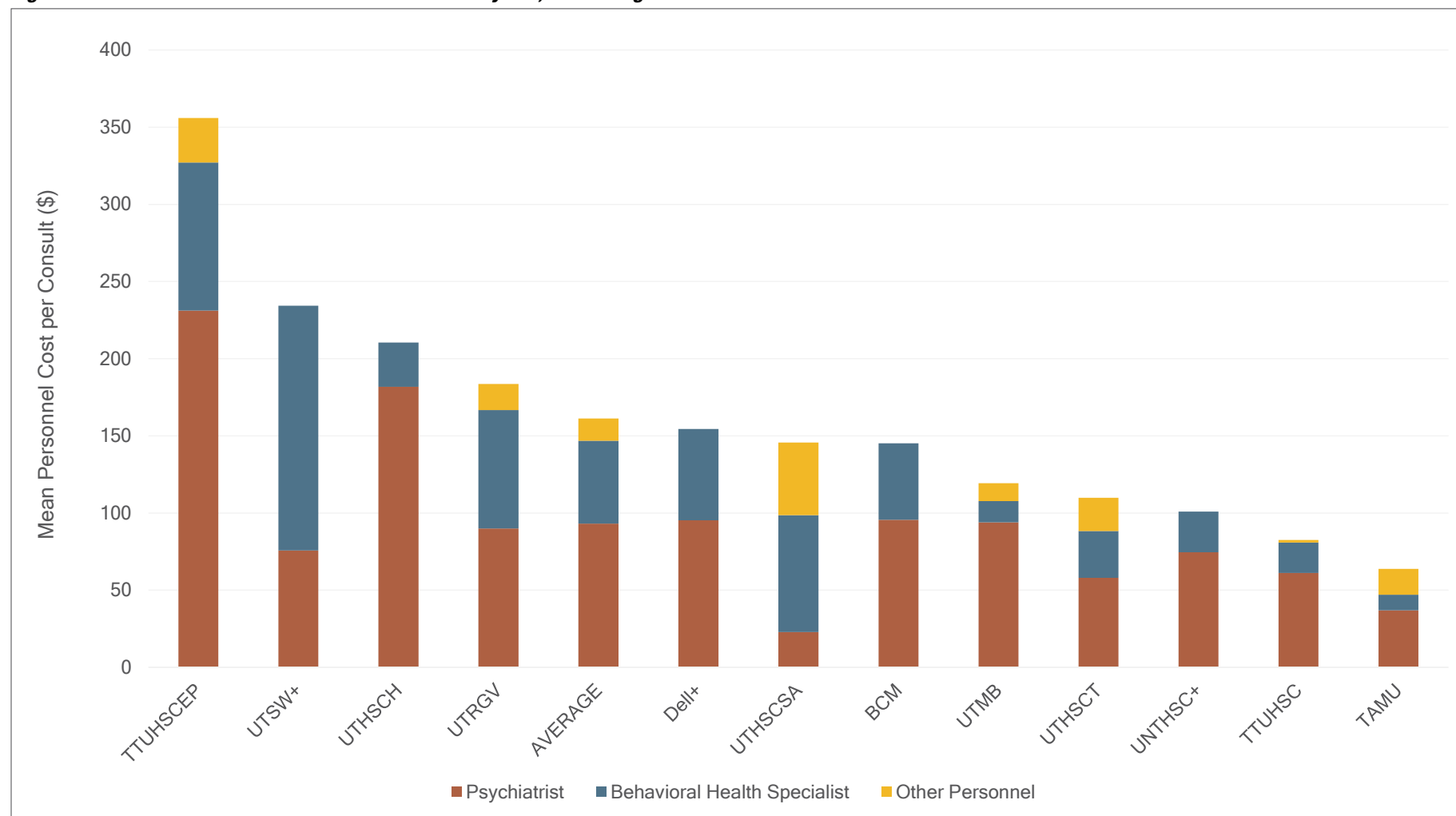


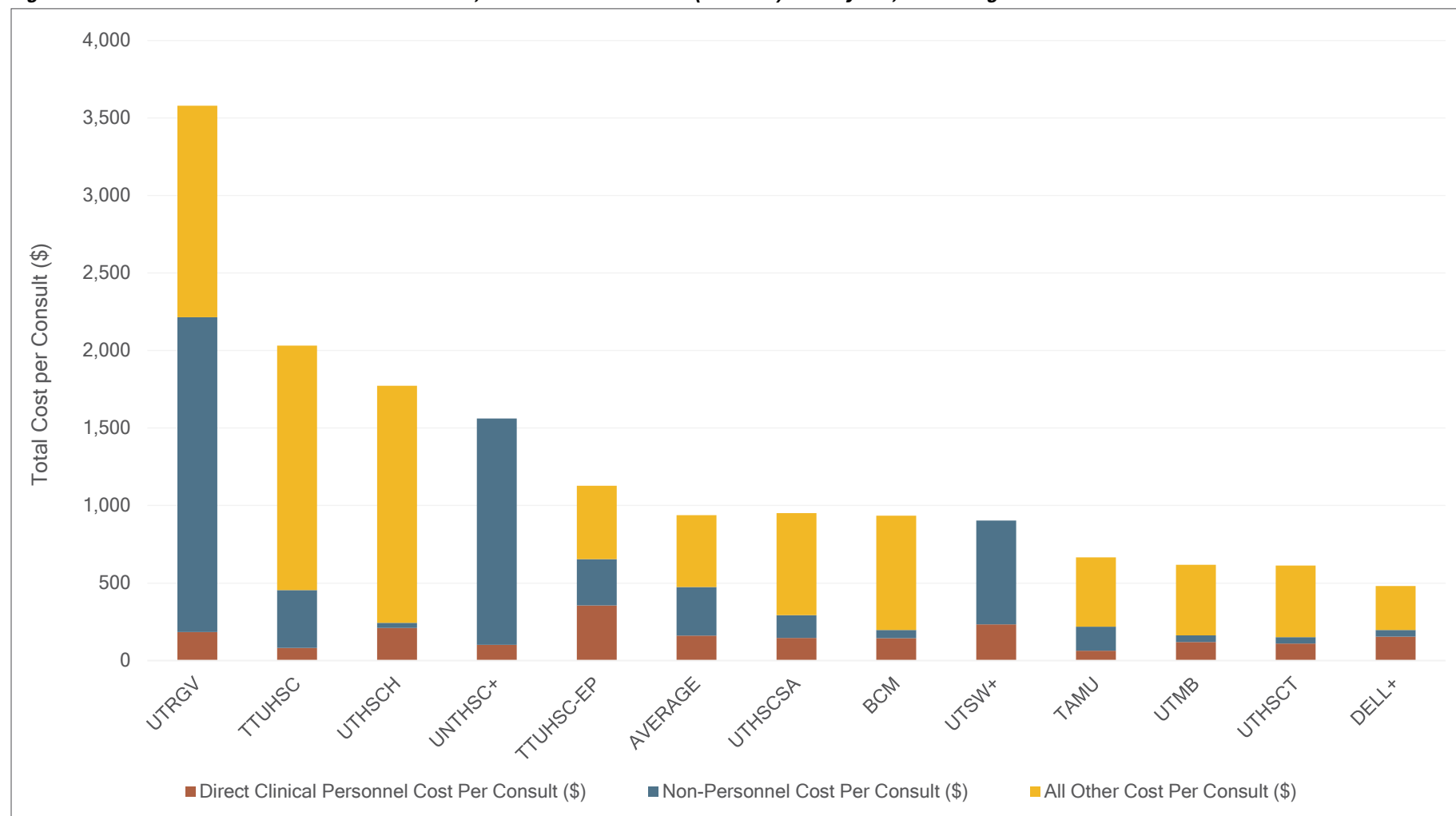
Figure 28. Direct Clinical Personnel Cost Per Consult By HRI, CPAN Program



Behavioral Health Specialists include Social Workers and Advanced Practice Practitioners/Clinician.

Other personnel include: Program Coordinator (TTUHSCEP, TAMU), Patient Services Specialist (TTUHSCEP), Resident/Fellow (TTUHSCEP), Case Manager (UTRGV, UTMB), Outreach Coordinator (UTHSCSA), Graduate Assistant (UTHSCSA), Program Manager (UTHSCT, TTUHSC, TAMU).

Figure 29. Per Consult Direct Clinical Personnel Cost, Non-Personnel & Other (Residual) Cost By HRI, CPAN Program



TCHATT

Table 12 and **Figure 30**, **Figure 31**, **Figure 32**, and **Figure 33** summarize the costs of implementing the TCHATT programs for the 12 HRIs for the fiscal year 2023 (September 1, 2022, through August 31, 2023). The growth and expansion of the TCHATT program is evident across the HRIs in Table 5 with the number of sessions increasing nearly three-fold from 32,565 to 84,972 and the number of unique patients receiving a consult also increasing about three-fold from 7,600 to 19,421. Since a given patient may interact with program staff multiple times to address their mental health concerns, patients serve as the unit of cost analysis for TCHATT. Highlighted cells indicate factors driving the cost per patient for relatively high-cost programs. Across the 12 HRIs, an average of 1,603 patients received consultation, and a total of 7,077 consults were performed per HRI. When total costs are spread over all students enrolled in schools with TCHATT programs, the average cost per student was \$7 (vs. \$8 in FY 2022) and ranged from \$3 per student (UTHSCH) to \$16 per student (TAMU).

The total TCHATT expenditures by HRI, based on each HRI's detailed financial report for FY23, is shown in **Figure 30**, with the average HRI spending \$2.2 million, ranging from a high of \$3.5 million at DELL with a low of \$1.1 million at UTHSCT. The average direct clinical personnel costs per *patient* for the 12 programs was \$429 (vs. \$401 in FY 2022), ranging from \$316 for UTHSCSA to \$558 for UTMB. The average direct clinical personnel cost per patient in TCHATT only comprises about 32 percent of the total average cost per patient (\$1,357) for TCHATT. Therefore, the bulk of resources were devoted to other aspects of the program, including planning, marketing, enrollment of schools, training, and education of school counselors and their staff, and general program administration. **Figure 31** shows how the staffing patterns in a program affect the direct clinical personnel costs per patient. On average across the 12 HRIs, psychiatrist time cost was about \$156 per patient, representing about 36% of direct clinical personnel costs for TCHATT. UTHSCSA had only \$15 per patient of direct personnel cost related to psychiatrist time (5% of its direct personnel cost) versus UTMB had \$279 per patient of direct personnel cost related to psychiatrist time (50% of its direct personnel cost). There is no direct correlation between the use of CAPs and direct clinical personnel cost per patient in higher total-cost HRIs. For example, 50% of UTRGC's direct personnel costs was due to CAP time costs (\$186), but only 11% of UNTHSC's direct personnel costs was due to CAP time costs (\$37); both of these HRIs had higher total-cost per patient (\$2381 for UTRGV and \$1883 for UNTHSC). BCM had one of the highest CAP time costs (\$214 or 46% of its direct clinical personnel costs) but was one of the lowest average total TCHATT costs per patient (\$1251). Across the 12 HRIs, about 41% of direct clinical personnel costs (\$174) were contributed by the behavioral health specialists. The remaining 23% of direct clinical personnel costs (\$98) across the 12 HRIs were due to other personnel. The lowest CAP time costs for direct clinical activities was UTHSCSA (\$15), which also has the lowest average cost per TCHATT session (\$147) out of all of the 12 HRIs.

Figure 32 demonstrates the total cost per patient for each HRI, categorized into direct clinical, non-personnel, and residual costs. The average non-personnel cost per patient, including subcontract costs for certain HRIs (indicated with "+" in Table 5 and Figures 4-7), was \$477 (vs. \$446 in FY 2022), ranging from \$15 for UTHSCH, which had the highest number of patients (2,883), to \$1,846 for UNTHSC which had a very high-cost total reported in this category for contracts which may not directly serve TCHATT. UTSW also had a high non-personnel cost per patient of \$1,471 due to a very high-cost total reported in this category for contracts which may not directly serve TCHATT. The average total cost per **patient**, excluding system-level COSH costs, was **\$1,357 per TCHATT patient**, with a range of \$713 per patient at UTHSCH to \$2,381 per TCHATT patient at UTRGV. Notably, this average total cost per TCHATT patient was about a 50% decrease from FY 2022 (\$2,557).

Figure 33 demonstrates the total cost per *session* for each HRI, categorized into direct clinical, non-personnel, and residual costs. The average direct clinical personnel costs per **session** for the 12 programs was \$97, ranging from \$48 in UTHSCSA to \$130 in UTSW. The average non-personnel costs per session for the 12 programs was \$108, ranging from \$4 in UTHSCH to \$434 from UTSW. The average total costs per session for the 12 HRIs was **\$308 per TCHATT session**, ranging from \$147 in UTHSCSA to \$528 in UTSW. Generally, the same lower-cost per session HRIs were the same as the lower-cost per patient HRIs (UTHSCSA, UTHSCH, TTUHSC, TTUHSCEP). These HRIs all had higher-than-average number of patients and sessions; for example, UTHSCSA saw 2,298 patients (vs. the HRI average of 1,603) and 15,230 sessions (vs. the HRI average of 7,077). UTHSCH saw 2,883 patients (vs. the HRI average of 1,603) and 10,602 sessions (vs. the HRI average of 7,077). Similarly, higher-cost per session HRIs were generally the higher-cost per patient HRIs (UTSW, UTRGV, UNTHSC). For UTRGV, their high cost was driven by a paucity of patients (762 vs. the HRI average of 1,603) and sessions (2,381 vs. the HRI average of 7,077). For UNTHSC and UTSW, their high total cost was driven by their large non-personnel/subcontract and residual costs.

In summary, lower costs per patient were driven by a relatively high number of patients and a somewhat lower intensity of CAP staffing, at least for the four lowest-cost programs. UTHSCSA was a lower-cost program with an average total cost per patient (\$974), and an average total cost per session (\$147) due to low CAP utilization (\$15 per patient, or 5% of total direct personnel costs) and a very high patient volume of 2,298 (vs. the average of 1,603 across the 12 HRIs) and 15,230 consults (vs. the average of 7,077 across the 12 HRIs) to spread the costs of administration and other fixed costs. Higher-cost HRIs had a relatively low number of patients to spread the costs of their relatively high total non-personnel and residual costs.

Table 12. Cost Per Patient, Per Session, and Per Student in Enrolled Schools By HRI, TCHAT Program

Programs	Direct Clinical Personnel Cost (\$)*	Non-Personnel Cost (\$)***	Direct Clinical Personnel Cost+ Non-Personnel Cost (\$)	Residual– Total Budget Spend Minus (Direct Clinical Personnel Cost+ Non-Personnel Cost) (\$)**	Number of Patients**	Direct Clinical Personnel Cost Per Patient (\$)	Total Estimated Cost Per Patient (\$)	Number of Sessions	Direct Clinical Personnel Cost Per Session (\$)	Total Estimated Cost Per Session (\$)	Number of Covered Students on Campus***	Total Budget Spend	Total Budget Spending Per Student in Enrolled Schools (\$)
DELL+	784,538	903,992	1,688,530	1,833,339	1,832	428	1,922	7,146	110	493	306,164	3,521,869	12
UTSW+	850,937	2,847,812	3,698,749	-233,274	1,936	440	1,790	6,569	130	528	425,937	3,465,475	8
TAMU	979,580	628,658	1,608,238	1,177,901	2,040	480	1,366	8,466	116	329	172,923	2,786,139	16
UTHSCSA	726,528	207,727	934,256	1,303,369	2,298	316	974	15,230	48	147	416,607	2,237,625	5
UNTHSC+	377,183	2,161,876	2,539,059	-334,121	1,171	322	1,883	5,348	71	412	299,267	2,204,938	7
UTMB	620,368	680,238	1,300,606	862,415	1,110	559	1,949	5,955	104	363	168,364	2,163,021	13
UTHSCH	1,358,252	41,818	1,400,070	654,312	2,883	471	713	10,602	128	194	655,456	2,054,382	3
UTRGV	312,211	869,902	1,182,113	631,825	762	410	2,380	3,956	79	459	288,034	1,813,938	6
BCM+	663,683	140,782	804,464	996,069	1,439	461	1,251	5,596	119	322	343,325	1,800,533	5
TTUHSC+	774,714	326,874	1,101,588	572,366	2,006	386	834	8,615	90	194	312,060	1,673,954	5
TTUHSCEP	603,916	225,778	829,694	442,375	1,110	539	1,146	4,700	128	271	92,310	1,272,070	14
UTHSCT	207,436	141,239	348,675	776,141	654	317	1,720	2,744	76	410	82,798	1,124,816	14
Total	8,259,346	9,176,698	17,436,043	8,682,716	19,241	429	1,357	84,927	97	308	3,563,245	26,118,759	7

*Estimated based on HRI consult time survey Data. Adjusted productivity rate = 0.9

** Based on non-personnel spending details, including subawards, provided by the HRI in their Detailed Financial Reports for FY 2023.

*** All spending that could not be identified from spending data or attributed to direct personnel cost for delivering consults.

+HRIs with SubAward (Grants). For example, UNTHSC subcontracts with Acclaim Physician Group for CPAN and TCHAT.

**Based on Trayt data for new encounters created in the FY 2023 period (September 1, 2022 to August 31, 2023).

***Based on TCHAT Campus List (through August 31, 2023), includes campuses with "MOU in progress" only.

Figure 30. Direct Clinical Cost, Non-Personnel & Other (Residual) Cost By HRI, TCHATT Program

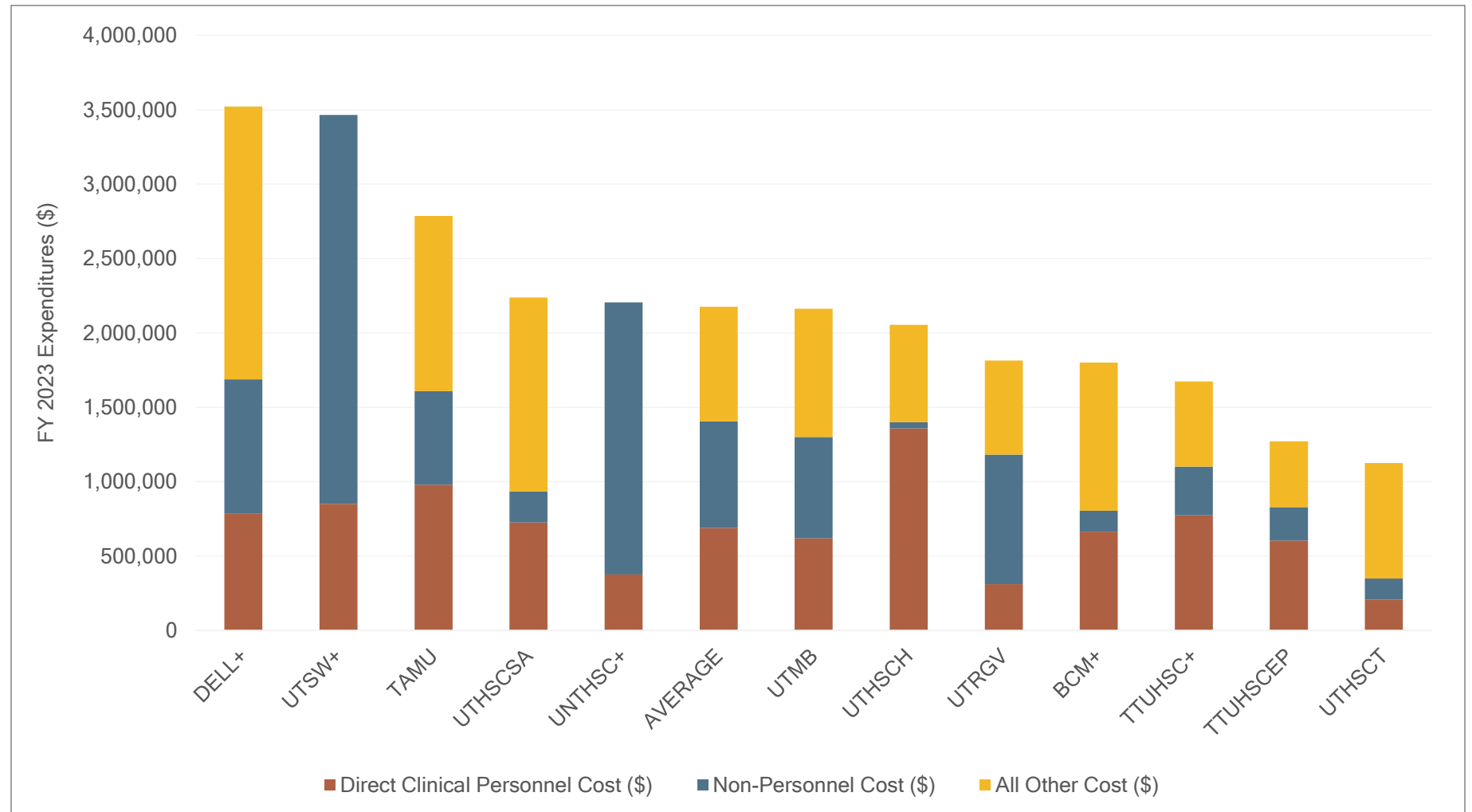
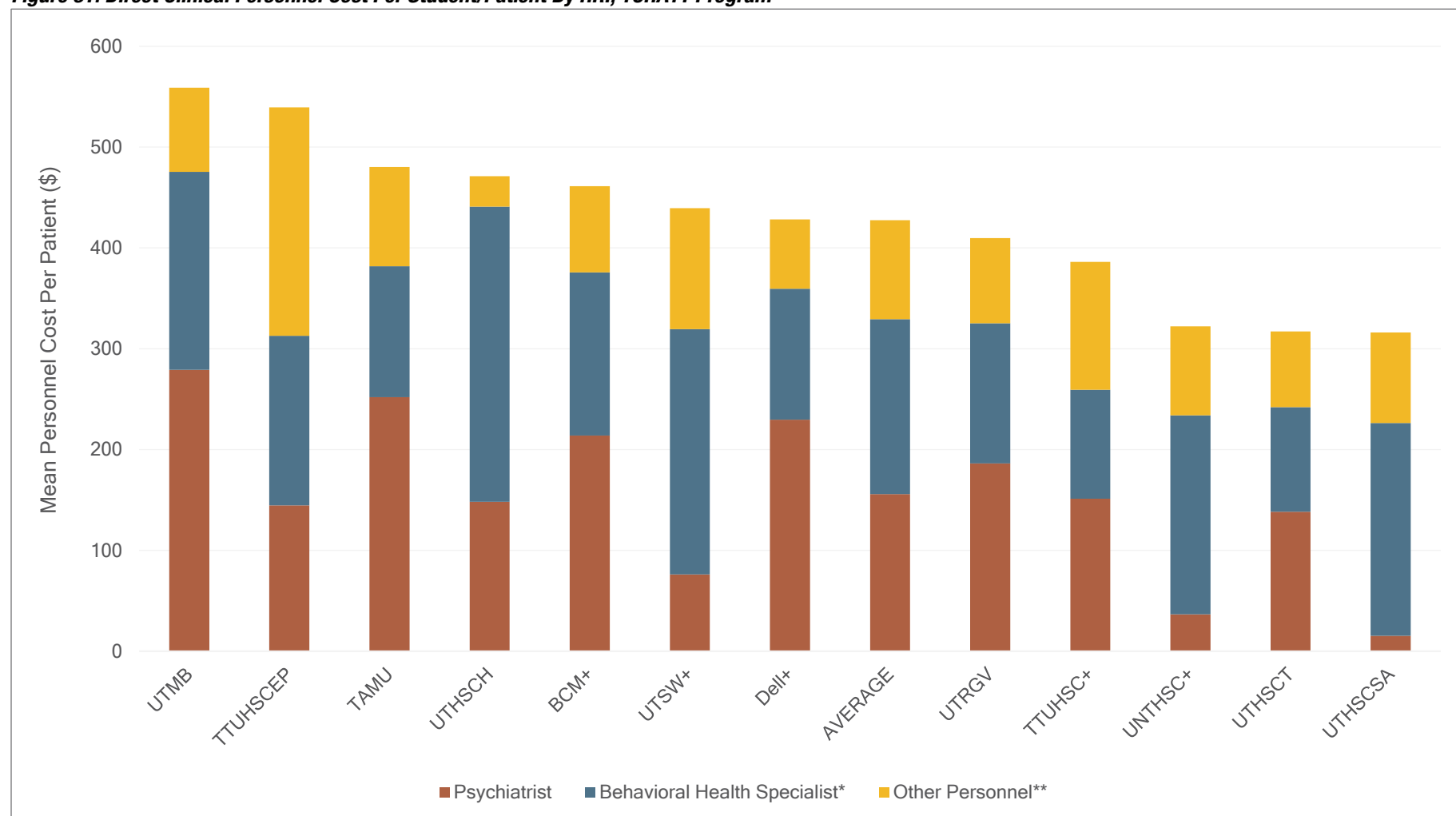


Figure 31. Direct Clinical Personnel Cost Per Student/Patient By HRI, TCHATT Program



*Different HRIs use different position title for the behavioral health specialist including behavioral health specialist, behavioral health consultant, therapist, LPC/mental health clinician, psychologist, clinical social worker, school liaison social worker, and advance practice practitioners.

**This broad category included care coordinator, patient service representative/specialist/coordinator, case manager/worker, patient access representative/navigator, intake coordinator/assessor, outreach coordinator, program coordinator, referral coordinator, administrative associate, medical/clinical assistant, and graduate assistant.

Figure 32. Per Patient Direct Clinical Cost, Non-Personnel & Other (Residual) Cost By HRI, TCHATT Program

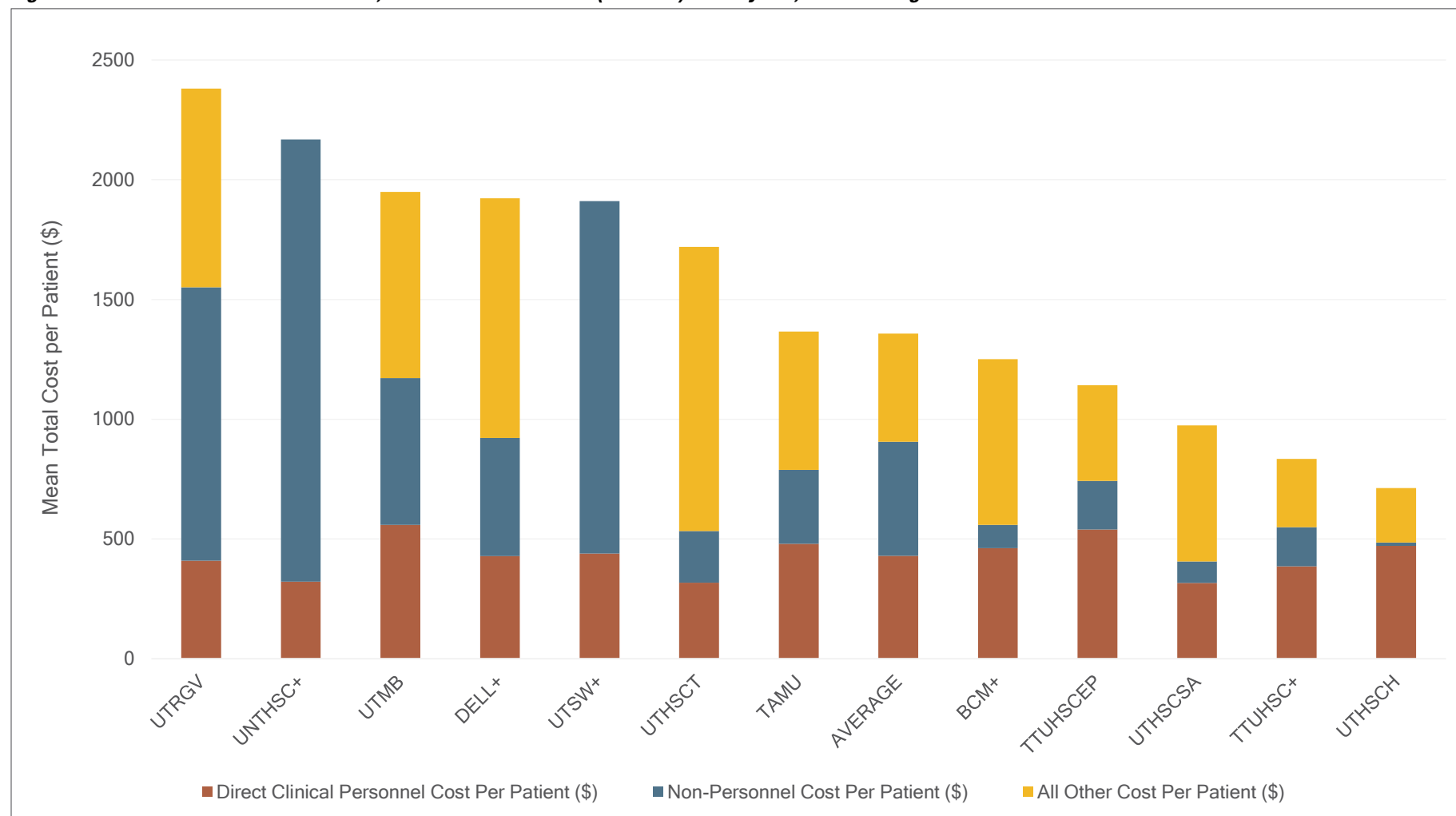
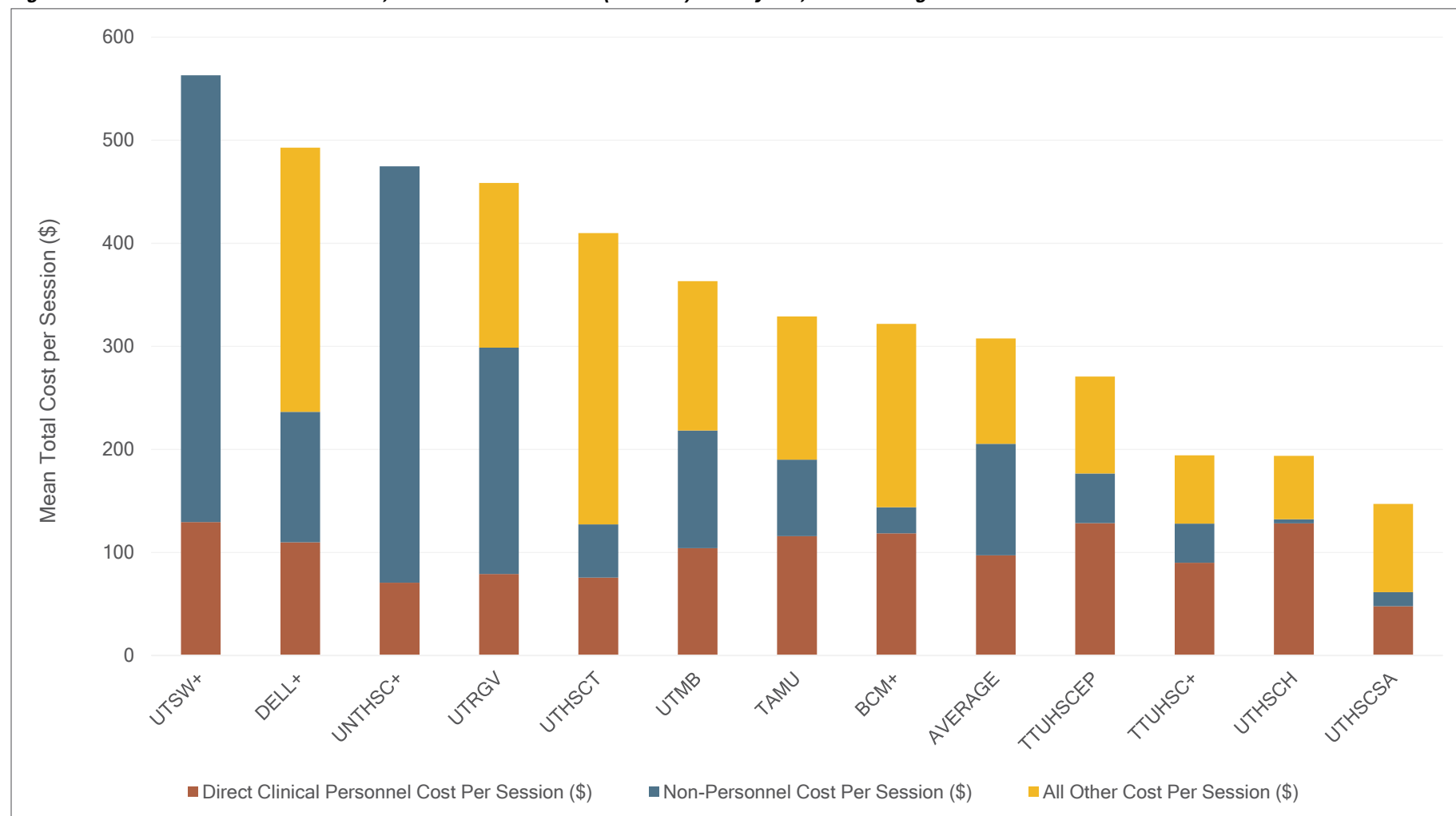


Figure 33. Per Session Direct Clinical Cost, Non-Personnel & Other (Residual) Cost By HRI, TCHATT Program



Summary

Time estimates for the TDABC model are self-reported best estimates of time per activity. CAPs reported their own times. When a few CAPs failed to respond, program managers provided the time estimates. In addition, program managers provided time estimates for the non-CAP staff. The manager generally reported an average time estimate for the same activity completed by different non-CAP staff. In most cases, CAPs filled out their own times; therefore, there was variation between the CAPs in their time estimates for the activities. While time measures among staff within HRIs have limited variance, there was a variance between the programs in staffing patterns and times, illustrating how the intensity of CAP deployment affects the cost measures. However, even with wide variations in the staff type involved in various CPAN and TCHAT activities, and the types of processes involved, it should be noted that the direct personnel clinical costs of CPAN and TCHAT only accounted for 16% of total costs for CPAN and 29% of total costs for TCHAT across all HRIs. Therefore, variations in staff composition performing each process and the occurrence of each process for CPAN and TCHAT have little effect on the overall costs involved with executing the program. In future years, survey data will be collected with increased frequency consequently reducing recall bias. In addition, new questions will be added to the survey to identify the probability of occurrence of the tasks and the extent of involvement of each personnel with the task. Furthermore, future surveys will seek to better correlate specific personnel performing various CPAN and TCHAT tasks to the listed salaries in each HRI's budget review for enhanced cost accuracy.

The cost of equipment, software, rent, and supplies were obtained from the detailed financial reports. The non-direct administration personnel and other non-personnel fixed costs were allocated to the CPAN and TCHAT programs. These non-direct costs substantially increase the cost per service, especially for programs with low service volume. For example, in the UNTHSC CPAN program with a relatively low annual volume of 578 consults, non-direct costs (excluding COSH costs) amounted to \$1,377 per consult compared to \$101 per consult for the direct clinical time cost. For UNTHSC and UTSW in the CPAN program and for UNTHSC, UTSW, and Dell in the TCHAT program, the relatively high non-direct personnel costs were embedded in a contract cost category in the spending reports without detailed subcategories in their monthly financial report to allow us to specifically limit our cost data to only CPAN and TCHAT-direct clinical-related activities for this HRI; therefore, their monthly expenditure likely contained spending on other contracted group and/or TCMHCC programs resulting in the highest cost estimate for TCHAT programs and one of the high-cost programs for CPAN. This cost allocation issue will be investigated and corrected in future reports if necessary. Another important issue to address in future reports is whether to allocate COSH and other system-level costs to the multi-dimensional outputs of the HRIs. The system-level non-direct costs will increase the estimated cost per consult, especially prior to fully scaling up the programs. Finally, clinic and school recruiting activities were still in process during year three. Clinic recruitment will increase the service volume and spread the fixed costs across more consults as we saw from FY 2022 to FY 2023.

The literature on 3rd party payment and the cost of providing comparable mental health services is sparse. No peer-reviewed studies were found on peer-to-peer consults for adolescent mental health. Naslund et al. (2022) published a systematic review of studies on the cost-effectiveness of telepsychiatry services. They found that the average cost per telepsychiatry session across various studies was about US \$100 to \$200 per session in 2019 dollars for general psychiatric conditions. Spaulding et al. (2010) found that performing 250 telepsychiatry consultations for 132 unique children and adolescents across rural Southeast Kansas over a 6-month period cost an average of USD \$168 (\$252 in current USD), which includes personnel costs, administrative costs, line charges, equipment, and office space. Dooley et al.

(2022) estimated the cost of pediatric clinic-based telehealth for cases with “low medical complexity” using time-dependent activity-based micro-costing (TDABC). Their cost estimate included a brief check-in time for administrative staff (3 minutes) and an 18.35-minute encounter by the provider. Their **overall labor cost estimate** for a telehealth MD visit was \$51.03 per visit (SD: \$7.56). Long et al. (2022) found that a 15-minute **nurse** visit via telehealth was about \$15.06 in labor costs alone. The authors estimated a value of \$57.11 per patient absence from the perspective of the school. Furthermore, the cost per missed school day to parents- including the need to provide childcare and miss a full day of work- was \$263 per absence. Teacher time to account for patient absences was about two additional hours of managing make-up work, leading to a total cumulative cost of \$405 per day of a patient absence. Telehealth led to a reduction of absences of 7-8%. While this study was not focused on mental health services, it provides an indication of telehealth's impact on inducing student absences and the cost of these absences to the schools and parents, highlighting an aspect of the societal benefit of CPAN and TCHATT.

There is a wide range of reimbursement for telepsychiatry services by public and private payers in the U.S. Further, there is very limited payment for peer-to-peer consults via telehealthcare, similar to the CPAN service. In May 2022, the Center for Medicaid and Medicare Services (CMS) listed payment rates for Interprofessional consults that ranged from \$18.69 for 5-10 minutes (code 99446) to \$73.71 for 30 minutes or greater (code 99449). The requesting physician must obtain consent. A large Houston mental health clinic anonymously provided information on their charge and payer reimbursement for tele-mental health delivered psychiatric evaluation and Rx management (code 99214). The clinic charges \$210 for the service, but reimbursement ranges from \$47.68 from Texas Medicaid to \$104.83 from Medicare Part B and \$106.43 from a large private insurance company. The clinic does not provide peer-to-peer consults due to the low reimbursement. Limited reimbursement for mental health services has historically been a limiting factor in increasing the availability of mental health services, which is the basic rationale for the TCMHCC programs. Given the cost of providing the services and without a substantial increase in payment levels, the TCMHCC programs are critical to increasing mental healthcare access for children and adolescents in Texas. To provide the greatest possible access for adolescents in need of mental health care at the statewide level, it is important to implement the programs in the most cost-efficient manner. Comparison of the costs and service outcomes across the programs can help identify efficient strategies for personnel staffing and the use of non-personnel resources.

As the programs learn, adapt, and gain scale in Year 4, we will make the following modifications: (1) More details on administrative overhead head costs will be collected and added to the analyses; (2) Better matching of personnel salaries with specific tasks performed will be accomplished; (3) Details around personnel working on sub-contracts will be obtained; (4) Variations in time spent on different program services and tasks will be examined in detail with the intent to resolve any variations due to reporting inconsistencies. In addition, the software used to obtain survey data will be changed to automate the data collection and cleaning process. Our aim is to create a unified multi-year database which can be used for advanced econometric analyses examining the investment, growth and outcomes of the programs over time. The TDABC values (wage rates, average activity times, mix of activities, and personnel) have and will continue to serve as key parameters in decision analytic models for assessing uncertainty in the cost-per-consult estimates and exploring the efficiency of alternative staffing patterns and other service delivery strategies. During the current year and upcoming year: (1) We will update our literature search to document the link between improving access to mental health services and quality of mental health care, patient health status, healthcare utilization, and healthcare cost; (2) We will collaborate with the UTHealth Houston School of Public Health Center for Health Care Data to determine the feasibility of

assessing the impact of the TCMHCC programs on population-based self-harm rates and other mental health problems suffered by Texas adolescents; and (3) We will examine the feasibility of linking Texas Education Agency data on school-level absence rates to whether the school has instituted the TCHAT program compared to similar schools that have not instituted the program.

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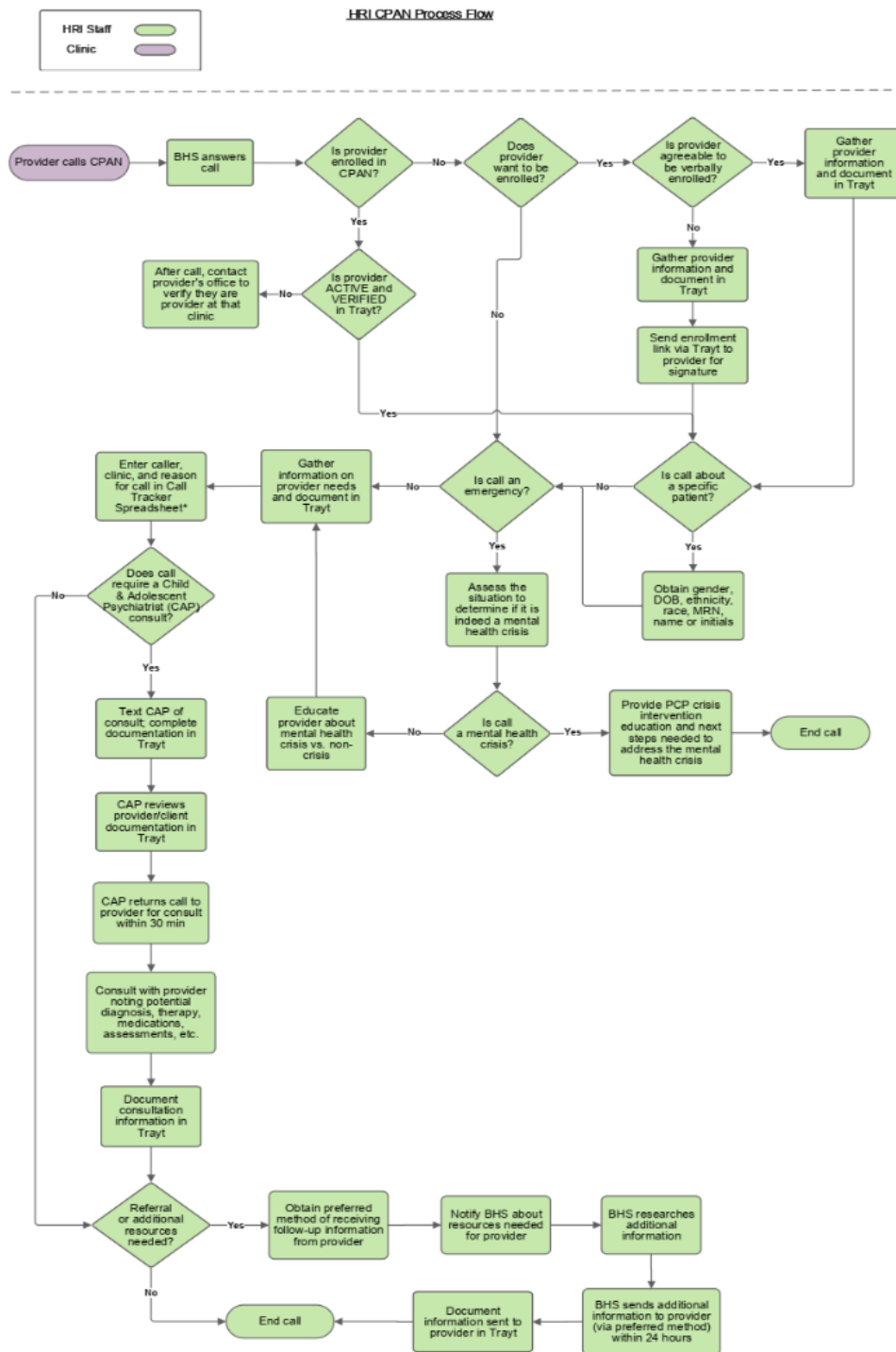
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APPENDICES

Appendix A: Detailed Process Maps

HRI CPAN Process Flow (UTHSCT)



HRI TCHATT Process Flow (BCM)



Appendix B: Example of HRI consult time survey results, Program Managers

CPAN (BCM) Implementation Staff Survey of Time per Consult

Instructions: Below are a set of consults and related activities provided by CPAN staff. **Please insert the average amount of time per consult/activity (in minutes) for all personnel listed below.** Please think back over the work **in the previous month** for the estimates. If there are multiple personnel with the same job title, please average their time. If there are additional staff (defined by job title), excluding any PeriPAN or newly hired staff that are ARPA funded, that are not listed and conduct these consults/activities, please add a new column with their job title.

Name of Respondent:	Position Title 1	Position Title 2	Position Title 3	Position Title 4	Position Title 5	Position Title 6
Date Questionnaire Completed:						
CONSULTS/ACTIVITIES	For a typical encounter over this past month, please enter your best estimate of the average amount of time per consult/activity (IN MINUTES) spent for:					
Answering PCP call and collect PCP and patient information and reason for call; enter into Trayt	5	7.5	10	3	15	12.5
Reviewing patient notes in Trayt prior to consultation (if PCP has called about patient before)	N/A	N/A	5	N/A	N/A	N/A
Contacting appropriate HRI team member for consult; transferring call to psychiatrist/therapist/resource coordinator or setting up a call back time	10	7	20	30	20	10
Conducting consults involving assessment, diagnosis, behavioral management, or medication management (i.e., reviewing case information in Trayt, obtaining information from PCP about patient, providing feedback to PCP, documenting consultation visit notes in Trayt, etc.)	25	45	50	65	90	80
Conducting consults involving referral assistance (i.e., identifying appropriate referrals, communicating referral information to PCPs, documenting notes in Trayt, etc.)	22.5	15	33	32.5	15.5	20

Conducting consults requiring general resources (e.g., identifying appropriate resources, communicating resource information to PCPs, documenting notes in Trayt, etc.)	25	30	15	20	40	50
Updating the referral database	5	15	20	30	15	22

Please insert any additional activities below, including:

1. A brief description of the activity in Column A below.
2. Identify the personnel(s) who TYPICALLY performed the additional activity based on position titles listed in columns B-G above.
3. The estimated AVERAGE time (in MINUTES) spent on the activity per consult and the percentage of CPAN consults that involve the activity in the corresponding cell.

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