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The Transforming Children’s Behavioral Health Policy and Planning Committee’s (TCB) *Children’s Behavioral Health System of Data Infrastructure and Use of Data For System Improvement Report*

Who is the “TCB”?

The Transforming Children’s Behavioral Health Policy and Planning Committee (“TCB”) was established in 2023 by Public Act 23-90 and mandated by the law to evaluate the availability and effectiveness of prevention, early intervention, and treatment services for children's behavioral health, substance use disorders, and general well-being of children. The TCB meets monthly to discuss topics aligned with the needs of children and services within the state of Connecticut. TCB Members consist of State legislators, policymakers, state agency representatives, and various stakeholders from the children’s behavioral health system in the state.

Background of the Report

The TCB contracted The Innovations Institute, at the UConn School of Social Work to produce three reports for the committee, including the following:

1. Connecticut Behavioral Children’s Provider Survey and Gaps Analysis,
2. National Approaches to Governance for Public Child- and Family-Serving Systems Comprehensive Fact Sheets
3. **Children’s Behavioral Health System of Data Infrastructure and Use of Data For System Improvement Report**

The Draft **Children’s Behavioral Health System of Data Infrastructure and Use of Data For System Improvement Report attached** provides an overview of Connecticut’s children’s behavioral health data infrastructure and quality improvement processes as well as recommendations for next steps.

Purpose and Intent of the Report

Following the release of the report, the TCB’s System Infrastructure Workgroup will enact a Cross Agency Data Sharing Workgroup that will lead the efforts of further evaluating this report, and if applicable, develop policy and or legislative recommendations. We anticipate that this report will serve as a valuable resource for informing members and key leaders within Connecticut. The insights and results derived from this report will be instrumental in enhancing the data infrastructure and quality improvement processes across the state.

Children's Behavioral Health System Data Infrastructure and Use of Data for System Improvement

Recommendations for Connecticut's Public Child- and Family-Serving Behavioral Health System

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Prepared for
The Tow Youth Justice Institute, University of New Haven and the Connecticut Transforming Children's Behavioral Health Policy and Planning Committee (TCB)

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Section 1. Introduction

This report provides an overview of the data infrastructure and quality improvement processes and structures in Connecticut related to children's behavioral health, as well as recommendations for next steps, to inform the Connecticut Transforming Children's Behavioral Health Policy and Planning Committee (TCB). Data infrastructure and use of data for quality assurance and continuous quality improvement (CQI) are essential components of an effective and sustainable public children's behavioral health system. The children's behavioral health system is composed of multiple entities that deliver, coordinate, and/or fund prevention, early intervention, and treatment services for children, youth, and their families, including behavioral health, education, child welfare, juvenile justice, and developmental disabilities. Systems, providers, and families require access to and use of data across all levels of system performance – from information on individual service provision to system functioning across a state.

The purpose of this report is to review and analyze the children's behavioral health data infrastructure in Connecticut to inform the TCB. This report is structured as follows:

- Section 2 provides an overview of key data infrastructure components, including uses of data for behavioral health service and system improvement.
- Section 3 describes model approaches and innovative strategies to enhance data infrastructure and use of data, using examples from other states.
- Section 4 summarizes core components of Connecticut's children's behavioral health data infrastructure, including identified strengths and limitations of these structures.
- Section 5 presents a summary of findings and recommendations to plan and implement data infrastructure and use enhancements.

Section 2. Overview of Children's Behavioral Health System Data Infrastructure Components

The data infrastructure needed to support children's behavioral health is substantial due to the many systems, partners, and providers that constitute the system; the range of data needed to meet a variety of purposes; and the number and variety of data systems used to collect this information. **Data infrastructure** is composed of systems, technologies, and processes for data collection, storage, management, processing, analysis, and reporting. A robust data infrastructure should be efficient, protect sensitive information, ensure compliance with security measures, be adaptive to evolving data needs, and facilitate decision-making and collaboration. It ensures the right data are available at the right time for those who need it.

In children's behavioral health, this is not an easy endeavor. Partners include health and behavioral health clinics, child- and family-serving systems, hospitals, primary care providers, community-based agencies, schools, funders, and others—all of whom collect data relevant to the functioning and performance of the children's behavioral health system. These data are collected through various methods (e.g., surveys, screening and assessment tools, treatment plans and progress notes) and used for multiple purposes, including service delivery, management and quality improvement, and planning.

Relevant **data systems** include administrative databases from state agencies, managed care plans, and administrative service organizations; electronic health records (EHRs) maintained by service providers; and platforms designed for screening, assessment tools, and specific service types (e.g., care coordination). **EHRs** are “real-time, patient-centered records that make information available instantly and securely to authorized users.”[i] They tend to be multi-functional for providers, and technology to improve their functionality is constantly advancing. Despite their advantages, behavioral health providers have historically lagged behind general medical providers in EHR adoption, due to high implementation costs, limited funding opportunities, lack of technical expertise, and workforce training needs, among other reasons. Today, though, many behavioral health providers use electronic systems to support at least some aspects of service delivery or operations.[ii] As adoption expands, so does the potential for higher quality, more accessible, and more timely data, each critical to effective service delivery and broader program and system management.

Data Sharing, Linking, and Interoperability

Any single data system will not tell the full story of a child and family’s experiences with behavioral health services or related systems since children and youth with complex behavioral health needs and public system involvement often receive services across multiple agencies. As a result, data must be shared and linked across systems. Such processes promote effectiveness, efficiency, and quality of individual service provision as well as larger system-level goals associated with transparency, informed policymaking, outcomes monitoring, and research and evaluation.

Data sharing is the act or process of providing access to data between entities (individuals, organizations, or systems). Data sharing allows agencies to access, exchange, and utilize information to ensure accurate service provision, inform decisions, and coordinate services, as well as to conduct relevant data analysis, evaluation, and research. Real-time or near real-time data sharing provides access to information instantaneously (or based on daily updates), which is particularly important for effective and efficient service delivery. Data sharing requires agreements, privacy safeguards (such as permissions), and secure approaches to data transfer. Without data sharing agreements in place, data systems remain siloed.

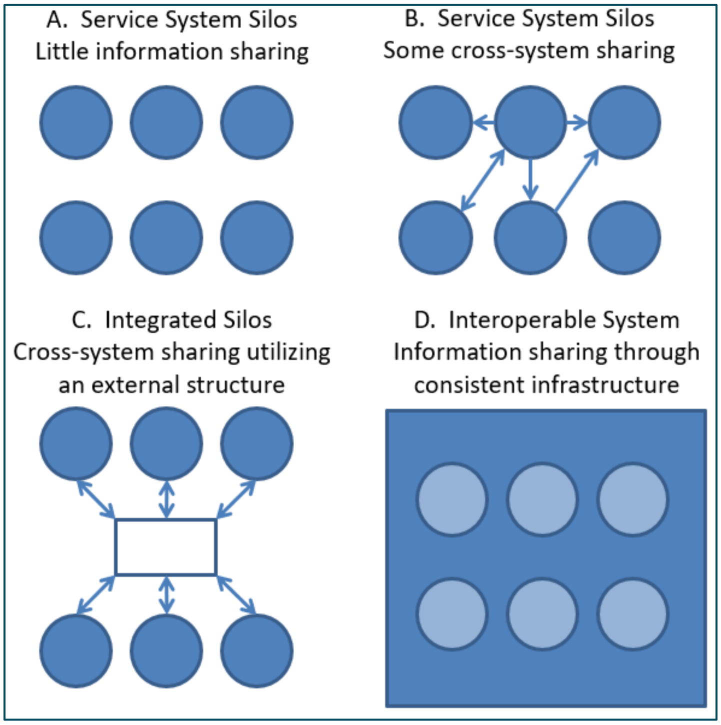
While data sharing alone might be sufficient to meet some cross- or inter-agency needs, data linking typically is required to connect the relevant pieces of information for individuals. **Data linking, or data integration,** is the process of merging one or more data sources based on common identifiers or using matching algorithms. Data linking is used to create single datasets for analysis as well as data systems that can be used for multiple purposes. The matching process relies on complete and accurate data; however, statistical approaches do allow for “fuzzy” (probabilistic) matches—cases where records look alike across several indicators and are very likely the same person. The more unique identifiers included in the matching process, the more confident we can be that the records truly belong to the same individual.

Data sharing and data linking are necessary to establish **integrated data systems.** An integrated data system utilizes an external structure, such as a third-party platform providing data linking and information sharing opportunities, to combine multiple disparate sources of data into a consistent, accessible structure. Agencies maintain their siloed data system and utilize an external structure to operate and maintain the data linking and access infrastructure. It can be operated by a state agency, third-party vendor, or university partner. This structure requires clear identification of the data that can be shared by each agency and with whom this information can be shared.[iii]

Data system interoperability is the ability of systems to exchange and use information seamlessly via technical processes. This process makes shared and linked data fully usable across different systems and contexts. Interoperable data systems require shared technical standards (e.g., data formats, exchange protocols), including a shared understanding of the data elements, data structure, and planned use of the data. The system design must start with the purpose or use of the interoperable data. An effective design process will also engage those who enter the data to ensure a common understanding of what the data means at the point of data entry. While planning and alignment efforts are substantial up front, data interoperability reduces manual effort and error over the long term.

Figure 1 illustrates four common approaches to storing and sharing data across systems, ranging from siloed structures (A) to a fully interoperable data infrastructure (D). Determining the appropriate level of data integration requires clarity about the purpose of data linkage. The infrastructure needed for linking data or maintaining integrated data can range dramatically. For example, a simple data sharing agreement may specify annual linkage of specific datasets to assess program outcomes. This process can be accomplished with a formal agreement, standard procedures, and minimal staff—but its scope and impact are limited. At the other end of the spectrum, a fully integrated or interoperable system demands substantial investment in technical infrastructure, including dedicated teams of data experts, programmers, and IT staff. However, this investment yields a much broader potential impact in terms of the scope, timeliness, and usefulness of the data.

Figure 1: Collaborative/Cooperative Data Structures



(Adapted from Shaw et al., 2016)

Ultimately, any data system, including and especially those that bring multiple sources of data together, requires strong data governance. **Data governance** is the framework for overseeing the policies, standards, processes, roles, and technologies that ensure the effective management and use of data. It ensures a shared understanding of standards for data access, security, quality, use, and any relevant restrictions on data use. Effective data governance establishes clear roles and responsibilities for data stewardship, defines procedures for decision-making and conflict resolution, and supports accountability across all participating entities. It also promotes transparency and consistency in how data are handled and helps build trust among partners, providers, and the public. In cross-system initiatives, data governance must be co-developed and maintained through collaboration among agencies to ensure alignment with legal requirements, ethical standards, and the specific needs of children, youth, and families served.

Central to effective data governance—and a major concern in any discussion of data sharing, linking, and interoperability—is **data security and privacy**. At its core, data security and privacy involve controlling information and ensuring it is used only as intended.[iv] This control has both legal and trust components, and addressing both is essential for success. In the context of children's behavioral health, where personal data is both highly protected and frequently exchanged across systems, robust safeguards are critical to protect individual rights and maintain public trust.

Several federal statutes and regulations address issues around data security and confidentiality related to children's behavioral health, including the Health Information Portability and Accountability Act (HIPAA), Family Educational Rights and Privacy Act (FERPA), Child Abuse Prevention and Treatment Act (CAPTA), and Confidentiality of Substance Use Disorder (SUD) Patient Records (42 CFR Part 2). Additionally, any state, local and/or agency requirements must be addressed.[1]

In addition to privacy and security, effective consent management is essential to ethical and legal behavioral health data sharing. **Informed consent** ensures that individuals—and in the case of minors, their caregivers or legal representatives—understand and agree to how their personal information is collected, used, and shared across systems. This is especially important given the sensitive nature of behavioral health records, as well as the number of entities that may be involved, such as healthcare, education, juvenile justice, and child welfare. Practices for obtaining and managing consent can vary widely across providers and systems, resulting in inconsistent documentation and application, particularly when data is integrated across platforms. Clear, transparent consent processes—with shared standards and formats—are critical to building trust and ensuring compliance with federal and state laws.

Beyond addressing data privacy and security, other potential barriers to data sharing, linking, and interoperability include data quality, structure, technology, staff capacity and expertise, resources (i.e., funding), leadership, and trust between contributing partners. Data quality is always a challenge—missing, incomplete, or inaccurate data can impede meaningful information sharing and record linking and/or yield inaccurate analysis and results. As noted above, data are collected in different formats and in different types of systems, which present challenges for data linking and aggregation. If data standards are not aligned, it is possible that not all the data needed will be pulled into the integrated or interoperable system. Organizations may also be hesitant to share data due to concerns about violating federal or state laws and/or they may not want to share their data with other organizations due to a lack of trust, which may stem from concerns about how data will be used, stored, and/or interpreted. All these challenges take time, collaboration, and resources to address.

The barriers summarized above are not insurmountable—there are many examples of successful data sharing and integration efforts, some of which will be highlighted in the next section. The great value of integrated and interoperable data systems is creating an overarching structure that works through the barriers and challenges to make way for more timely and efficient use of data on behalf of shared populations of children, youth, and families.

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[1] Connecticut's Office of Policy and Management conducts annual in-depth reviews of laws and guidelines relevant to data sharing, including those noted above, which are available on their website.

Use of Children's Behavioral Health Data

While data sharing, linking, and interoperability can enhance service provision and coordination, these efforts alone will not necessarily lead to quality children's behavioral health systems. Data must also be accessed, aggregated, analyzed, visualized, and/or reported in ways that support its many uses, including for service delivery, program/system management, evaluation and planning, and research (see Figure 2). Often, practitioners, system partners, and policymakers face significant challenges in accessing the data needed for planning, monitoring and assessment, and decision-making.

While all the outlined uses of data are necessary for effective systems, this report focuses on certain aspects of program and system management, including performance management, quality assurance, and quality improvement.

Uses of Children's Behavioral Health Data

- Service Delivery
    - Service and treatment planning, care coordination, communication, and individual care monitoring
    - Billing
    - Predictive analytics, risk assessment, and support for decision-making
- Program/System Management
    - Utilization management
    - Performance management
    - Quality assurance, satisfaction, and fidelity monitoring
    - Quality improvement
    - Required federal, state, and other reporting
    - System collaboration
- Evaluation & Planning
    - Analysis for program/system planning, including cost and equity analyses
    - Program evaluation
    - Population health analysis
- Research to address population or system-level questions related to outcomes

Figure 2: Uses of Children's Behavioral Health Data

Performance management is a structured process for setting goals, monitoring progress, and evaluating outcomes to enhance organizational or individual performance. It aligns with and supports the agency's strategic goals and focuses on achieving defined objectives and accountability. Agencies and systems define Key Performance Indicators (KPIs) and benchmarks to help assess performance. Agencies can focus their quality improvement efforts when key issues are identified.

Quality assurance (QA) is the process of ensuring that a program and/or practice is being delivered and achieving outcomes according to defined quality standards. QA typically uses a systematic approach, following a schedule, procedure/protocol, and yielding output that allows for issues to be identified and addressed. The goal is to ensure consistency and compliance with standards. QA efforts may include activities such as compliance monitoring, accreditation, peer reviews, fidelity monitoring, and satisfaction surveys. Children's behavioral health providers typically must comply with quality standards specified by funders, licensing bodies, and other accreditation or certification organizations.

Quality improvement (QI), or continuous quality improvement (CQI), is designed to enhance the quality of a service, practice, or process. It focuses on areas needing improvement, implementing changes, and measuring the impact of those changes. These approaches tend to involve teams of stakeholders, including individuals with lived experience and individuals participating in services, to engage in problem identification, decision-making, and implementing changes. The process can be flexible and evolves to focus on specific issues that change over time. The goal is to yield measurable improvements in processes and/or outcomes.

Performance management, QA, and QI are complementary processes. Performance management ensures the system or agency is functioning according to its strategic objectives. QA ensures practices and processes are functioning properly and standards are met. QI focuses on practice improvement and opportunities for enhancement. All processes rely on quantitative and qualitative data to support their objectives.

Data dashboards are important tools for children's behavioral health providers and systems, supporting individual service delivery, program/system management, and planning efforts. With the large amounts of data collected, even by a single provider, easily reviewing aggregated data tailored to the user's day-to-day work is an invaluable resource. Dashboards designed to show data trends in performance measures, describe populations, and summarize outcomes are essential for QA and QI processes.

The structures, processes, and related considerations described above represent some key components of children's behavioral health data infrastructure for stakeholders to consider in planning efforts. There are additional technologies and technical capacities that were not reviewed for the sake of brevity (e.g., IT technical processes, evaluation/analytical capacity) but are also essential to data infrastructure and use of data. What is hopefully clear from the overview is that **stakeholders from many agencies (and across units) and many types of expertise are needed for successful data sharing, integration, and use efforts, and strong leadership and coordinated activities are essential to the process.**

Section 3. National Models, Best Practices, and Innovations in Children's Behavioral Health Data Infrastructure and Use of Data for Quality Improvement

There have been decades of investment in systems, processes, guidance, and technology to support data sharing, linking, and interoperability in healthcare and public service systems. At the same time, frameworks and tools for quality improvement have also advanced, expanding opportunities to use data to strengthen services and outcomes. No state has a fully comprehensive children's behavioral health data system, and each state's infrastructure reflects its own history, governance, and investments. Still, important lessons can be drawn from national and state models that demonstrate how data can be integrated and used to improve systems. This section highlights model approaches in data infrastructure, governance, and integration; innovative uses of technology such as dashboards and artificial intelligence (AI); and best practices for using data in quality improvement. While none of these examples are perfect or universally transferable, they illustrate strategies that Connecticut can consider and/or adapt to further strengthen its own children's behavioral health data infrastructure.

To guide this review, there are several core elements that states should attend to when strengthening their children's behavioral health data systems:

- **Foundational infrastructure** that enables integration across agencies and sectors.

- **Governance and legal structures** that create accountability, standardization, and clear rules for data sharing.
- **Sustainable funding and staffing models** to ensure long-term system maintenance and analytic capacity.
- **Analytic, reporting, and transparency mechanisms**—including dashboards and open data portals—that translate data into actionable insights and build public trust.
- **Quality improvement frameworks and standardized performance measures** to support system oversight and service improvement.
- **Innovations** such as real-time service access tools and AI that modernize infrastructure and expand possibilities.

The following examples are shared to illustrate some of the work occurring across the country and elevate opportunities for Connecticut's consideration. We are not necessarily endorsing specific models in this section, nor are we assuming that the systems engaging in these practices are achieving desired outcomes. Instead, these examples should be viewed as learning opportunities to compare against Connecticut's current infrastructure and goals.

National Approaches to Data Infrastructure and Integration

National initiatives related to healthcare, education, and other public services have encouraged and supported data sharing and linking for varying purposes, but with a common goal of facilitating the use of data for improving individual well-being and outcomes. **The current national landscape is a patchwork of promising data integration initiatives, but persistent challenges complicate their implementation.** Key barriers include siloed state service systems; state service data systems being run on outdated technologies that hinder seamless information flow; and appropriate concerns regarding data privacy, security, consent, and compliance with federal laws such as HIPAA, the Confidentiality of SUD Patient Recodes (42 CFR Part 2), and FERPA.[v] Even with these concerns, data sharing of various degrees is common in states and jurisdictions throughout the United States.

Real-time data sharing across child- and family-serving behavioral health systems is increasingly recognized as essential for timely, effective, and coordinated care. Despite advancements in technology and recognition of the importance of data-driven decision-making, significant gaps remain in achieving seamless, real-time data sharing. Some jurisdictions, however, have built the policy foundations, technological infrastructure, workforce training, and political will needed to initiate and operate real-time (or near real-time) data sharing.

Below, we describe three common types of integrated and interoperable data systems used in public systems and healthcare: Statewide Longitudinal Data Systems, All-Payer Claims Databases, and Health Information Exchanges. Although designed for different purposes, these systems provide a foundation that states can leverage to strengthen children's behavioral health services, management, and evaluation. They are not the only models for data sharing and linking—later in this section, we highlight additional state and local approaches that extend these ideas.

As of June 2024, all 50 states and the District of Columbia have received funding for the development of a **Statewide Longitudinal Data System (SLDS)**, and 33 states have a fully functioning system.[vi] An SLDS is "a data system that connects individuals' data over time across at least two of the following domains: early care and education, K-12, postsecondary and the workforce. An SLDS may also incorporate data from other domains, such as juvenile justice or corrections."[vii] These systems integrate data to help answer questions about student learning and outcomes and facilitate research to increase student achievement and close achievement gaps.[viii] For children's behavioral health, SLDS data can provide critical context on related outcomes, such as school attendance, academic achievement, or juvenile justice involvement—factors closely tied to behavioral health needs and service use.

Over the past decade, a growing number of states have implemented **All-Payer Claims Databases (APCDs)**. APCDs are large databases that include medical, behavioral health, pharmacy, and dental claims, along with eligibility and provider files collected from private and public payers in a single state. They are designed to support research and analyses that can lead to improving health care affordability, efficiency, and cost transparency.[ix] The APCD Council is a learning collaborative of government, private, non-profit, and academic organizations focused on supporting APCD implementation. Currently, 18 states have legislation mandating the creation and use of APCDs or are actively establishing APCDs, and more than 30 states maintain, are developing, or have strong interest in developing one.[x]

The most common form of *interoperable* data sharing is through a **Health Information Exchange (HIE)**, which allows for secure electronic sharing of patient health information between healthcare providers, organizations, and systems (including behavioral health). HIEs have near real-time linked patient data that can help to improve care coordination, enhance patient safety, reduce duplicative services, and ultimately reduce healthcare-related costs.[xi] Federal funding and technical assistance (e.g., via the **Office of the National Coordinator for Health Information Technology [ONC]**) are available to support HIE implementation. Most states now have at least one HIE in operation, with varying levels of provider participation and functionality.[xii]

State and Local Approaches to Data Infrastructure and Integration

While national initiatives like SLDSs, APCDs, and HIEs provide important infrastructure, some states and localities have developed data systems that demonstrate how governance, collaboration, and sustainability strategies can support cross-agency data use. These efforts are often more flexible, tailored to local needs, and designed to address practical policy and service delivery challenges.

One important national initiative connecting these efforts is the University of Pennsylvania's **Actionable Intelligence for Social Policy (AISP)** network. AISP aims to foster collaboration, share practical knowledge, and help jurisdictions overcome common barriers to data sharing so systems are better equipped for shared decision-making, understanding complex service needs, measuring outcomes, and targeting resources effectively.[xiii] As of 2024, 39 projects from across the country were engaged in the AISP Network, including two from Connecticut: P20 WIN and the Hartford Data Collaborative. Most initiatives highlighted through AISP integrate data for policy analysis, program evaluation, or research; real-time or near real-time data linking efforts for case management and care coordination are rare. Two projects that support broad uses of data, including case management, are the Allegheny County Department of Human Services (DHS) Data Warehouse and the South Carolina Integrated Data System. Each of these, described in more detail below, illustrates different approaches to integrated data systems.

Allegheny County Department of Human Services Data Warehouse

The **Allegheny County Department of Human Services (DHS) Data Warehouse** (Data Warehouse) integrates client- and service-level data across Allegheny County, Pennsylvania. The foundation of the Data Warehouse was established in 2000 with processes to link behavioral health data with child welfare system data, as well as other publicly funded systems such as those related to homeless services and adult services. The Data Warehouse was designed to accomplish three goals:

(1) Improve services for individuals and families in Allegheny County;
(2) Provide necessary information to the workforce, management, and policymakers to support effective service delivery; and
(3) Ensure data transparency for the broader public.

The Data Warehouse provides data linking and data access services through analytic and decision-making tools that are available to users based on the sensitivity of the data. Tools for public use include QuickCount, which provides an overview of individuals receiving services across all participating organizations, as well as more detailed data that can be used for case management and service delivery (Client View).[xiv]

The Data Warehouse publishes documentation on its development, software and data structure, data sources, and how the data are integrated and used—all accessible through its public website. These materials underpin several lessons learned in the creation and ongoing operation of the Data Warehouse, including: (1) the importance of leadership and stakeholders who understand the value and benefits of linked data; and (2) that trust among participating public agencies is built over time and strengthened through consistent data sharing and demonstrated value. As of 2024, the Data Warehouse integrates data from 27 sources, including child welfare, substance use, mental health, and public benefits systems.[xv]

The Data Warehouse is operated by the County government through the DHS Office of Analytics, Technology and Planning. The annual cost is approximately $6.5 million, which covers the technology, software, and personnel (35 analysts and data leads, plus technical support contracts).[xvi] Funding comes from DHS and is partially supported through a unique pooled funding mechanism called the Human Services Integration Fund (HSIF). Developed in 1997, the HSIF is a pool of flexible funds from community partner foundations that can be used to improve services and provide resources for innovative practices in Pittsburgh.[xvii]

Allegheny County demonstrates how a local jurisdiction can build and sustain a comprehensive data warehouse over decades. Its success rests on innovative pooled funding, robust staffing and analytic capacity, and strong governance practices that emphasize transparency and public access. It also illustrates how trust is cultivated as partners repeatedly see value in linked data.

South Carolina Integrated Data System

The **South Carolina Integrated Data System** (SC IDS) was established in the early 1970s and is housed within the Executive Branch's Revenue and Fiscal Affairs (RFA) Office.[xviii] Data partnerships have been established over the years through state statutes and voluntary agreements to access over 21 data sources, including Medicaid claims, mental health, alcohol and drug services, and social services.[xix] The SC IDS is designed to facilitate analysis of individuals and service use across systems. Data are linked through a multi-step statistical process, but agencies retain control over the use of their data and on how often their data is updated in the system. Statutes help preserve system stability; for example, the South Carolina Appropriations Act specifies that a number of state departments **must** share client-level data with the IDS (see Figure 3).[xx]

The RFA Office oversees fiscal analysis, mapping services, IT and compliance, internal finance and HR operations, and the IDS. With a budget of more than $60 million (including over $6 million in general funds) and approximately 75 staff, the office provides infrastructure and analytic capacity to support the IDS as part of its broader mission to enable informed policy decisions.[xxi]

South Carolina demonstrates how long-standing statutory authority, interagency agreements, and stable governance can sustain a statewide integrated data system for decades. By embedding behavioral health-relevant data into a broader cross-agency framework, the SC IDS helps ensure children's behavioral health is understood in relation to education, health, and social service outcomes rather than in isolation.

SC Integrated Data System: Agencies Contributing Data

- Health and Human Services
- Health and Environmental Control
- Mental Health
- Alcohol and Other Drug Abuse Services
- Disabilities and Special Needs
- Social Services
- Vocational Rehabilitation
- Education
- Juvenile Justice
- Corrections
- Probation, Parole and Pardon Services
- Department of Children's Advocacy
- Children's Foster Care Review Board
- Continuum of Care
- Department on Aging
- South Carolina School for the Deaf and the Blind
- Commission for the Blind
- Other entities as deemed necessary by the Revenue and Fiscal Affairs Office

Figure 3: SC Integrated Data System: Agencies Contributing Data

Massachusetts Cross-Agency Data Governance and Analytic Capacity

Massachusetts provides an example of how strong governance and independent analytic capacity can enable effective cross-agency data sharing. The Massachusetts Executive Office of Technology Services and Security (EOTSS) was founded in 2017 with the goal of having a single organization overseeing data security and data utilization. It coordinates data sharing across state agencies through three core mechanisms:

(1) A process to work with agencies to develop Data Use License Agreements;
(2) A Data Leadership Council (chaired by the EOTSS) with representation from all agencies; and
(3) A statewide Memorandum of Understanding, signed by agency data owners and users, that formalizes data sharing commitments.

This governance framework supports the work of the Center for Health Information and Analysis (CHIA), an independent state agency that collects and analyzes health care data to improve transparency, accountability, and policy decision-making. CHIA manages the state's APCD and compiles additional data on cost, quality, access, and provider performance—providing a broader analytic capacity than claims data alone. In 2022, Massachusetts enacted the Mental Health ABC Act, which charges CHIA with monitoring behavioral health services across mental health and substance use disorder categories, including for children and adults. Leveraging these mandates and resources, CHIA released its first Behavioral Health Dashboard in 2024, offering public reporting on utilization, costs, quality, equity, and other outcomes.[xxii]

Design and Sustainability Considerations for Data Systems

As states modernize their data systems, several design choices shape effectiveness and sustainability. One important decision is whether the system should be state-run (including by a state university) or vendor-based. State-run systems give governments full control over policies, operations, and compliance processes, allowing for greater consistency in operations, data standards, and privacy protections. They also offer structural stability, as wholesale changes of government agencies are rare. Vendor-based systems, on the other hand, often bring enhanced technical expertise, greater scalability, and the ability to adapt more quickly than many government-run systems. They can also be cost-effective, as the bidding process for services ensures competitive pricing structures. However, when contracting with vendors, states must ensure they retain rights to the data and require full access to all data and code in the event of contract termination or transition.

While the systems described above contain data related to children's behavioral health, they may not include all information needed to address urgent service or policy questions. Many states face challenges in their behavioral health systems that require real-time access to specific data, such as availability of services or workforce capacity. Filling these gaps may require additional data sharing and integration, updates to existing systems, or the adoption of new technology.

For example, many states are exploring solutions to help families access care by tracking availability and services in real time. Several, including Georgia, North Carolina, and California, are implementing bed tracking software and closed-loop referral (CLR) systems, such as Behavioral Health Link and OpenBeds. While these tools can address pressing needs, they can be costly and are not without challenges. Beyond cost, other important considerations when seeking data collection/access solutions (including selecting new applications) include: the number of agencies, providers, and EHRs involved; related applications that may already be in use; the level of integration or interoperability that is possible and realistic; and the level of training that will be needed for the system to be used as intended. Stakeholders must have a clear understanding of what information is needed and how it will be used to identify the most sustainable solution.

In search of solutions, stakeholders can look to other sectors for products that mirror their aims. For example, Iowa partnered with Iowa State University and Revenant Technology to develop a real-time child care availability tool. Launched in August 2024, Iowa Child Care Connect (C3) offers public-facing tools that allow parents to search for nearby child care providers, view current vacancies, and access dashboards showing supply and demand across the state.[xxiii] The process to create C3 began in 2021 and entailed modernizing state child care assistance processes and working with vendors to bridge technology gaps between existing child care management systems and state systems. Currently, about 50% of Iowa's child care facilities are part of the system, and the state is working to increase the participation rate.[xxiv] While the development of C3 illustrates the complexity of creating real-time dashboards, it also provides a useful model for presenting service access information—lessons highly relevant to behavioral health.

AI and Children's Behavioral Health Data

Artificial intelligence offers new opportunities to strengthen children's behavioral health data collection, linking, and analysis. AI refers to the use of computers to perform tasks typically associated with human intelligence. Within AI, there are subsets that are particularly relevant to behavioral health, such as machine learning, which uses data to make predictions, and natural language processing (NLP), which enables computers to understand human language and generate human-like text.[xxv]

The use of AI-driven tools is growing rapidly in behavioral health service delivery. These tools can support diagnosis, generate treatment recommendations, and incorporate patient self-reported information into their care.[xxvi] They can also reduce administrative burden by generating progress notes, transcribing and summarizing sessions, and providing prompts to ensure complete documentation. AI-powered chatbots are also being used to supplement therapy and provide on-demand support.[xxvii,xxviii]

Beyond service delivery, AI can support data integration and interoperability. For example, it can automate data quality checks, standardize data formats for linkage or conversion to a common data model, and help structure free-text fields, making them usable for analysis or record matching—tasks that would typically require extensive manual work. In addition, AI is being piloted to support advanced and distributed analytics, allowing for analysis across decentralized systems while maintaining centralized coordination and oversight.[xxix]

However, use of AI is not without significant concerns. It does not inherently protect an individual's privacy, ensure informed consent, or secure their data—organizations still need to attend to guidelines and manage the technology risks, which may be more challenging to address given the rapid pace of AI development. There is also risk for bias in recommendations if the tool relies on non-representative data, and for inaccurate or even harmful information to be generated by tools such as chatbots.[xxx,xxxi] Experts emphasize that AI should complement—not replace—human decision-making, with careful oversight of all outputs.[xxxii]

State policymakers are beginning to actively address the implications of AI in healthcare and human services. A growing number of AI-related bills have been introduced and enacted in state legislatures, and many states have established task forces and councils to inform their next steps, including the development of guidelines that ensure individual protections, transparency, and accountability.[xxxiii] In addition, states are beginning to invest in AI-supported strategies to strengthen public-serving systems, including children's behavioral health. For example, Illinois partnered with Google to launch Behavioral Health Care and Ongoing Navigation (BEACON), a portal that uses AI to match families with behavioral health resources most relevant to their needs.[xxxiv]

The applications of AI, along with examples of integrated and interoperable data systems, underscore the diverse considerations and capacities required to strengthen data infrastructure. Additionally, they showcase promising government-private partnerships aimed at leveraging data for public benefit. Some of these examples offer lessons learned based on years of development and implementation, while others are still in their early stages, and it will take time to assess their impact and utility for the field.

Model Approaches and Best Practices in Quality Improvement

As the availability of behavioral health data generated through EHRs, insurance claims, state administrative databases, and other sources has grown, so have expectations for *using* these data to inform system- and service-level continuous quality improvement efforts. CQI is not just about collecting data—it is about using data systematically to monitor implementation, test changes, and improve outcomes. Effective CQI requires three elements: (1) clear and meaningful performance measures, (2) timely access to data, and (3) structures that support shared accountability and learning across providers and systems.

Performance Measures as a Foundation

Performance measures are the building blocks of CQI. In children's behavioral health, these typically include service capacity, access to care, treatment engagement and retention, fidelity of treatment processes, clinical outcomes, participant satisfaction, and measures of equity and disparities. Planning for measures should focus not only on what data are available, but what data *should be* collected and monitored to understand if the service is having the intended reach, being implemented well, and achieving desired outcomes. When key data elements are missing, planning efforts should include activities to collect them—often referred to as a *data development agenda*.[xxxv]

Performance measures should be defined at both the service and system levels and tied directly to goals and objectives. Key measures—such as outcomes like emergency department visits or hospitalizations—are often housed in other agency or state system databases, and access to them can be facilitated through integrated data systems. Ideally, performance measures are standardized for consistent use over time, and thoughtful planning is required upfront to ensure a shared understanding of each metric's purpose and how it will be calculated. One widely used performance management framework is Results-Based Accountability™ (RBA), which emphasizes data use, collaboration, and accountability. RBA can guide the development of performance measures and ensure alignment with broader population-level outcomes and accountability goals.[xxxvi]

Identifying common metrics across the children's behavioral health system is a complex task. EHRs vary in their data fields and how those fields are operationalized. Some providers lack systems that capture service-specific measures or the capacity to easily extract them. Service models also differ in structure and implementation, which affects the relevance and availability of comparable metrics. While evidence-based practices (EBPs) typically have well-defined performance indicators—sometimes tracked in separate systems—other services may have few or none. These challenges can limit the availability and consistency of data for CQI, particularly at the state or regional level. Still, they should not prevent efforts to define, collect, and use performance measures that reflect system goals.

Federal Requirements Shape Measurement

Several national entities require standardized reporting of behavioral health measures that influence state CQI efforts. The Healthcare Effectiveness Data and Information Set (HEDIS®), developed and maintained by the National Committee for Quality Assurance (NCQA), is widely used to evaluate the quality of care and services. HEDIS® measures are used to assess performance and identify opportunities for improvement across plans and providers.[xxxvii] Similarly, the Centers for Medicare & Medicaid Services (CMS) requires states to collect and report data, including Child and Adult Health Care Quality Measures. Beginning in 2025, the Child Core Set will include seven behavioral health measures.[xxxviii] These measures focus primarily on follow-up care for children prescribed certain medications or after hospitalization or emergency department visits, with the only preventive/early intervention measure being "Screening for Depression and Follow-Up Plan" for youth ages 12-17. The Child Core Set is required to be reviewed annually and updated as needed. While the HEDIS® and Core Set measures have limitations, their value lies in allowing for comparisons that inform state and national efforts to enhance behavioral health services. CMS has other mandatory data reporting requirements associated with the use of federal funds, including mandatory reporting on Early, Periodic, Screening, Diagnostic and Treatment Services (EPSDT) through Form CMS-416.

Other federal agencies have reporting requirements associated with receipt of federal entitlement and discretionary funds that support children's behavioral health services, directly or indirectly. For example, the Substance Abuse and Mental Health Services Administration (SAMHSA) requires data collection and reporting under the Mental Health and Substance Use Block Grants and System of Care Grants. The Administration for Children and Families (ACF) has mandatory and voluntary data reporting from child welfare agencies through a number of initiatives, with some measures relating to children's behavioral health or well-being (AFCARS, NYTD, NCANDS, and program-specific funds). The U.S. Department of Education also has related program and data-reporting requirements. Together, these mandates set a baseline, but states often expand beyond them to track additional measures more closely aligned with local priorities.

Frameworks for CQI

Several frameworks are available to guide how data can be used to drive improvement. States commonly draw on the following approaches when designing their strategies:

- **Plan-Do-Study-Act (PDSA):** A widely used, flexible framework for testing and refining changes in short cycles. PDSA supports rapid learning and adjustment informed by data.
- **Results-Based Accountability™ (RBA):** Focuses on aligning program-level performance measures with broader population outcomes. RBA emphasizes collaboration and accountability and is used by many states to ensure CQI is tied to system-wide goals.
- **Breakthrough Series Collaborative (Institute for Healthcare Improvement):** A structured, time-limited model that brings multiple teams together to learn, test, and spread best practices. This approach is used by states to build shared accountability across providers and agencies.
- **Lean / Process Improvement Approaches:** Adapted from manufacturing but applied in health and human services, Lean emphasizes eliminating inefficiencies and standardizing processes to improve quality and reduce delays.

All these frameworks emphasize using data, engaging teams, and creating structures for accountability. States often blend elements across these approaches depending on their system context and goals.

Teams and Collaboratives Drive Improvement

CQI depends on organized structures that bring people together to interpret data and act on it. A range of collaborative structures are used across states to support CQI in children's behavioral health. Common structures include:

- **Implementation Teams** – Ongoing groups at the state, regional, or provider level that support the sustained use of evidence-based practices and system reforms. These teams regularly review fidelity and outcome data, identify barriers, and coordinate adjustments to ensure practices are implemented as intended.
- **Quality Improvement (QI) Teams** – Agency-based teams that bring together clinical staff, supervisors, and managers to review performance data, set improvement goals, and test

changes in care processes. These are often the backbone of day-to-day quality improvement within provider organizations.

- **Learning Collaboratives and Networks** – Structured, multi-agency initiatives that foster peer-to-peer learning, shared measurement, and rapid-cycle improvement. Collaboratives (often modeled on the Institute for Healthcare Improvement's Breakthrough Series) are typically time-limited, while learning networks provide ongoing opportunities for shared accountability and exchange across providers and systems.

Whenever possible, these efforts should include all stakeholders, especially families and youth with lived experience. Multiple perspectives are valuable to identifying the most concerning trends, understanding contributing factors, and shaping effective solutions. States frequently partner with Centers for Excellence, EBP purveyors, or intermediary organizations that support the implementation of behavioral health services, including quality improvement efforts.[xxxix]

Collaborative structures ensure that data are not only collected but actively used by those closest to service delivery and policy decision-making. States that invest in a mix of these approaches create multiple feedback loops—linking practice, supervision, management, and system oversight—to drive sustainable improvements in access, quality, and outcomes.

Dashboards for Transparency and Accountability

Access to timely performance data is critical for policymakers, program managers, and other stakeholders who support service and system CQI. While real-time dashboards are the gold standard, even data with some delay is valuable to informing service/system performance and guiding decision-making. Data visualization tools are now widely available, and enhancements have made them easier to develop, publish, and use. Interactive dashboards provide users with data in formats that help them to easily monitor system and/or service performance and incorporate filters that can help with data disaggregation (e.g., by race, ethnicity, age, gender, etc.) and identifying areas or individuals who would benefit from improvements. Dashboards are most effective when they are easily accessible, tailored to the users' roles, incorporate visualizations that are easy to interpret (e.g., include benchmarks), and updated regularly (as real-time as possible).

Public dashboards allow for much-needed system transparency but must also be designed to protect individual identities. Some dashboards provide data that are closer to real-time, while others lag one or more years. North Carolina's Medicaid Dashboards, Maine's Children's Behavioral Health Data Dashboard, Oregon's Children's System of Care Dashboard, New York's Profile of Children in NYS Medicaid with Behavioral Health Needs, and New Jersey's Children's System of Care Data Portal offer examples of public-facing dashboards that allow users to assess and monitor different aspects of children's behavioral health system performance. While dashboards offer extraordinary potential to support the use of data, they require expertise, staffing, and financial investment to develop and maintain them over time.

In summary, these national models, state and local approaches, and CQI strategies illustrate both the promise and complexity of building a modern children's behavioral health data system. While no state has developed a perfect or comprehensive model, the lessons learned across jurisdictions highlight practical strategies that can be adapted to Connecticut's context.

Section 4. Connecticut's Existing Children's Behavioral Health Data Infrastructure

Connecticut has a strong foundation to support its children's behavioral health data infrastructure, with numerous partners contributing across sectors. Key resources include administrative data systems that track services and supports; integrated and interoperable data systems; centers that support the collection, management, and use of data; workgroups and initiatives that have focused on aspects of the data infrastructure; and state-level entities that guide and sustain Connecticut's broader data strategy.

Among state entities that support the data infrastructure are the **Office of Policy and Management (OPM)** and its **Data and Policy Analytics (DAPA)** division**.** DAPA supports the State's data needs, including open data, data integration, analytics, mapping and geospatial data, best practices, and coordination and facilitation. It is responsible for the State Data Plan, CT Open Data Portal, P20 WIN, and the Geographic Information System (GIS) Office. The CT Open Data Portal is an online platform offering public access to a wide range of datasets, visualizations, and tools managed by state agencies. It promotes transparency, accountability, and innovation by making state data easily accessible to residents, researchers, businesses, and policymakers. DAPA maintains a Data Sharing Playbook to help state agencies share data appropriately and effectively. In addition, it publishes an annual report on legal issues related to interagency data sharing, helping agencies stay up to date with relevant state and federal laws. The report also summarizes state efforts to support data sharing, including a coordinated statewide data governance structure (for P20 WIN, which is further described in this report) and the development of flexible, durable data sharing agreement templates.[2]

The Connecticut State Data Plan provides a framework for the state's executive branch agencies to engage in a consistent approach to data stewardship, use, and access. The current 2025-2026 plan includes several goals that directly support continued development of the children's behavioral health data infrastructure (see Figure 4). In alignment with these efforts, Connecticut has also established a Responsible Artificial Intelligence Framework that outlines principles for the ethical, transparent, and accountable use of AI in state government. This framework provides important guidance as agencies—including those overseeing children's behavioral health—consider the role of emerging technologies in data collection, analysis, and service delivery.

Connecticut State Data Plan: 2025-2026 Goals

- Goal 1: Increase accessibility and visibility of existing data resources, including tools, software, and training materials.
- Goal 2: Make data easier to find and link by improving metadata and documentation.
- Goal 3: Identify additional data-related training and resource requirements for agency staff.
- Goal 4: Review job specifications for data and analytics roles for potential updates.
- Goal 5: Develop new opportunities for an enterprise data sharing approach.
- Goal 6: Develop data governance and data quality policies to support responsible use of AI.

Figure 4: Connecticut State Data Plan: 2025-2026 Goals

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[2] The *Legal Issues in Interagency Data Sharing Reports* are available at https://portal.ct.gov/datapolicy/knowledge-base/articles/data-sharing-resources?language=en_US.

The **Office for Health Strategy (OHS)** collects, analyzes, and shares data to inform the development of programs, policies, and laws that promote equitable access to high-quality healthcare, control cost growth, and improve healthcare quality. A key advisory body to OHS is the **Health Information Technology Advisory Council (HITAC)**, which was established under state law to guide and oversee Connecticut's health information technology initiatives. HITAC plays a central role in shaping the statewide health IT plan and standards, ensuring that technology and data sharing are used to improve care quality, coordination, and efficiency across the healthcare system. **Public Act No. 21-35**, *An Act Equalizing Comprehensive Access To Mental, Behavioral And Physical Health Care In Response To The Pandemic*, directs OHS to develop **standards** for improving how health data are collected—specifically regarding race, ethnicity, and language. The goal is to better align demographic categories with individuals' self-identification and enhance data consistency across agencies. OHS also oversees the State's APCD and HIE, both of which are described in more detail below.

Key Data Systems & Partnerships Related to Children's Behavioral Health in Connecticut

Connecticut has several state-managed or state-contracted data systems that are useful in managing, assessing, and improving behavioral health services provided to children, youth, and their families. Each data system has strengths and limitations concerning the potential capacity to support the TCB's goals in using data to monitor and improve behavioral health system performance, which are summarized in the following section. *This review is not exhaustive.* There are other databases not covered in this review that relate to children's behavioral health (e.g., data from the Department of Developmental Services [DDS] and the Connecticut State Department of Education [CSDE]), but we focused on the most prominent and potentially valuable data systems to inform the TCB's work.

Specifically, we reviewed data systems managed through the Connecticut Behavioral Health Partnership (CT BHP); the Department of Children and Families (DCF) and their partner, the Child Health and Development Institute (CHDI); and the Judicial Branch Court Support Services Division (JB-CSSD), which serves court-involved youth. In addition, we reviewed Connecticut's relevant integrated and interoperable data systems, including the All-Payers Claims Database; Preschool through 20 Workforce Information Network (P20 WIN; the state's SLDS); and Connie, Connecticut's HIE. Table 1 summarizes the data systems reviewed in this report. More in-depth reviews of each system are available in Appendix B.

These data systems differ along many dimensions, including the size and nature of the populations included, the type of data collected and stored, the primary purpose(s) for which the data system has been designed or is typically used, and how the data is used for QA/QI. Below, we summarize the strengths and limitations of the data system concerning the capacity to answer the questions or provide the functionalities of potential interest to the TCB.

Table 1. Connecticut's Primary Children's Behavioral Health Data Systems & Partnerships

System	Steward(s)	Data System Type	Population(s)	Types of Data	Primary Purpose(s)	Data Availability[1]
CT BHP - Quality Metrics Reporting & Service Delivery, Performance Management, and Evaluation	CT BHP & Carelon Behavioral Health CT	Integrated[2]	Medicaid members	Medicaid claims data augmented with pharmacy, eligibility, and enrollment data; other linked data sources (e.g., US Census, SDOH indicators)	Individual care management, service utilization and quality management, program evaluation, population health analysis	Lag for data transmission and preparation
DCF - Provider Information Exchange (PIE) & CHDI – EBP Tracker	CT DCF & CHDI	Single System	Recipients of community-based services contracted by DCF	Populations served, referrals, service utilization, service provision (including fidelity), completion, assessments, outcomes, and service satisfaction	Performance monitoring and management	Some real-time reporting capacity
JB-CSSD - Contractor Data Collection System (CDCS)	CT JB-CSSD	Single System	Recipients of services contracted or operated by JB-CSSD	Youth served, referrals, service utilization, service provision, assessments, and outcomes	Performance monitoring and management	Lag for data preparation
All-Payer Claims Database (APCD)	CT OHS	Integrated	Recipients of services covered by public and private health insurance	Claims, eligibility, and provider for services provided	Research and analysis	3-6 months lag for data transmission and preparation
P20 WIN	CT OPM	Integrated	Individuals involved with 13 CT State Agencies and 2 Nonprofits	Administrative datasets covering educational, vocational, and supportive services, including behavioral health	Research, analysis, and reporting that involves multi-agency data	Lag for data transmission and preparation
Connie (Connecticut's Health Information Exchange)	Connie & OHS	Interoperable	Individuals who received services from a CT-licensed healthcare provider who utilizes an EHR	Clinical data (but not therapy notes), laboratory results, pharmacy data, and real-time notifications of hospital admission, discharge, and transfer events	Individual care management and care coordination across providers	Near real-time

[1] All data availability is dependent on when data are entered into data systems by providers.

[2] Carelon BH CT integrates the Medicaid dataset with other data sources.

Populations included. The populations in these data systems represent different groups of children and youth who utilize behavioral health services in the state. PIE and the CDCS are limited to individuals referred to services contracted or operated by DCF and JB-CSSD, respectively. The CT BHP assesses data explicitly for Medicaid members, whereas the APCD and Connie include service recipients from a broad range of healthcare providers. P20 WIN, while not explicitly focused on behavioral health, includes any child or youth involved with one of the participating state agencies, including DCF, JB-CSSD, and Medicaid.

> *Strengths:* CT BHP, DCF/CHDI, and JB-CSSD's data systems include populations of children and youth who tend to have higher rates of behavioral health service utilization. Collectively, the P20 WIN datasets cover most of the child population in Connecticut. The APCD has the broadest population of healthcare recipients, as it includes Medicaid and other public systems.
>
> *Challenges and Considerations:* No single system includes all children needing behavioral health care or utilizing services. State agency data systems (CT BHP, DCF/CDHI, JB-CSSD) are limited to those who are referred to and/or receive services from their contracted providers. Both the APCD and Connie have gaps in data for behavioral health populations. For example, only a minority of behavioral health service providers are currently participating in Connie, and some commercial payers that are serving CT residents but based out of state may not be participating in the APCD. The APCD is also missing data from self-funded health plans. There are additional populations of youth who access behavioral health services funded by other agencies (e.g., schools, early childhood programs, Youth Service Bureaus) who will not be included in these data systems, or at least easily identifiable as service recipients.

Types of data. The data systems referenced vary in the types of data they hold. Some contain a single kind of data—for example, Connie holds electronic health record (EHR) data, and PIE includes administrative and clinical program data. Others integrate multiple data types from a range of sources. For instance, P20 WIN links administrative data from several state agencies, while Carelon Behavioral Health combines Medicaid enrollment, eligibility, and claims data with housing, mortality, and other datasets to support a more comprehensive understanding of service use and outcomes.

> *Strengths:* Collectively, these sources capture a broad range of behavioral health service indicators. CT BHP, DCF/CHDI, and JB-CSSD maintain comprehensive data on individuals served and service provision, which is valuable for system performance management. Both the APCD and Connie offer data on service utilization, while the APCD and CT BHP include cost data that is useful for evaluating efficiency. P20 WIN datasets have many indicators that can be used to measure social determinants of health (SDOH) and other relevant child- and youth-related social and outcome measures (e.g., engagement in school).
>
> *Challenges and Considerations:* While there are some common data types across systems, how the data fields are operationalized and data completeness likely vary. None of the data systems reviewed maintains data that is currently of strong interest to the TCB, such as provider capacity, staffing levels, or waitlists for services. Additionally, comprehensive data on population-level needs are lacking; available data primarily reflect individuals who are already receiving services.

Primary purposes and data availability. The data systems have typically been designed for singular or multiple purposes that vary from system to system. These include service delivery, program/system management, evaluation and planning, and/or research. The most important implication for the TCB is how well a system's intended use aligns with its specific interests and questions. Systems designed with similar goals are more likely to offer relevant, usable data.

> *Strengths:* The CT BHP, DCF/CHDI, and JB-CSSD systems are used for monitoring service delivery and performance, and these databases can be used to understand who is served, quality of service delivery, and outcomes. P20 WIN and the APCD primarily support research that can inform policy, patterns of service utilization, and outcomes. Connie has extensive service delivery data and the most advanced capacity for real-time data reporting.
>
> *Challenges and Considerations:* The usefulness of these systems to inform the TCB depends on the specific issues of interest. For example, while concerns such as service capacity and wait times have been raised, the systems reviewed were not designed to track these indicators. Connie is currently used primarily for case management and care coordination, though it has potential for broader applications. The availability of data for reporting and dashboards is influenced by the timeliness of data entry, as well as the time required to prepare data for analysis. Systems that rely on claims data, such as the APCD and CT BHP, are not real-time, and there is a significant lag between when healthcare encounters occur and when reports are/can be generated.

Reporting and uses of data for children's behavioral health system QA/QI. The data systems designed for performance monitoring and management—CT BHP, DCF/CHDI, and JB-CSSD—are the most likely to be used for QA and QI efforts. These systems generate both routine and ad hoc reports to meet federal, state, and other oversight requirements. CT BHP, DCF/CHDI, and JB-CSSD each participate in oversight and/or advisory board meetings, where data reports are shared. They also use data as part of internal performance management efforts and have staff supporting the use of data for quality management purposes. Notably, Carelon BH CT has substantial capacity to create performance measures (including HEDIS® and CMS Behavioral Health Core Set quality indicators) and dashboards, and to conduct ad hoc analyses that inform system performance. They also employ Regional Network Managers, who utilize the data with providers for quality improvement. In addition, DCF contracts with CHDI to operate Performance Improvement Centers (PICs), which monitor training, manage and report on EBP-related data (utilization, fidelity, and outcomes), and support quality improvement activities across the state. In some cases, EBP purveyors support these processes directly.

> *Strengths:* Among all the data sources, there is great potential to generate meaningful performance measures to support state quality improvement efforts. Carelon BH CT's analytic capacity and CHDI's data analysis and reporting are strong assets. The PICs are implementing robust CQI processes. The recently published APCD Behavioral Health Dashboards provide data on diagnoses, service use, cost, co-occurring conditions, and social drivers, with some indicators filterable by child age groups (though the most recent year of data is 2022). Further, P20 WIN also has the capacity to be a rich source of data on social determinants of health and outcomes related to education, employment, and other child and youth well-being indicators.

Challenges and Considerations: Not all funded services have QI/QA processes, particularly those that are not evidence-based. QI activities are likely very different across systems. Interactive and filterable data dashboards are extremely valuable tools for QA/QI, but the systems vary regarding access to the technology and staff necessary to develop and manage them. Connie is still implementing several of its core capacities (e.g., data extracts, full enrollment of mandated participants), though its recently introduced population management tool has promise for QI applications. P20 WIN has the potential to incorporate additional agency data that could enhance QA/QI efforts (e.g., outcome data), but this is not its primary function. Ensuring appropriate resources and managing data lag times may pose challenges for using P20 WIN in this way.

In summary, the primary children's behavioral health data systems have much to offer the TCB. **To fully understand their capacities and limitations, the TCB will need to establish an agenda for data, including goals and related performance measures that can then be mapped to the existing data structure (including additional data sources, as relevant).**

Other Data-Related Partners and Resources in Connecticut

There are additional stakeholders in Connecticut who have focused on the state's behavioral health data infrastructure or who compile data that can inform children's behavioral health system planning and improvement efforts. For example, several entities maintain data relevant to children's behavioral health and service planning, including DataHaven, 2-1-1 counts, CTData Collaborative, DPH's Connecticut School Health Survey (CSHS), and the State Epidemiological Outcomes Workgroup (SEOW) Prevention Data Portal. In addition, several national and state survey data sources provide valuable information on children's behavioral health needs and outcomes (see Appendix C).

Connecticut's **Behavioral Health Plan for Children** ("the Plan") was developed following the tragedy in Newtown as a comprehensive, cross-agency strategy to promote the healthy development of all children in the state. Since its release in October 2014, the Plan has guided efforts to strengthen the children's behavioral health system. The Children's Behavioral Health Plan Implementation Advisory Board (CBHPIAB) submits annual reports to the Connecticut General Assembly with updates from related workgroup activities and recommendations for system improvement. The Advisory Board's **Data Integration Workgroup** has focused on the state's behavioral health data infrastructure for several years, identifying gaps and putting forth recommendations to improve infrastructure related to data. The workgroup's objectives included monitoring the state's data integration efforts, encouraging agency participation in P20 WIN, identifying cross-system indicators and metrics of children's behavioral health system performance, and making recommendations to the Advisory Board and the 12 State Department Commissioners for further follow-up and implementation.[xl] The workgroup also identified several challenges for data integration efforts, including: the need for organizational leadership involvement in data sharing and investment in technical expertise to support data integration efforts; inconsistent and incomplete data—particularly for critical fields such as race and ethnicity; varying protocols for public data accessibility; and the need for a family indicator to more effectively track service delivery and outcomes across the behavioral health system. [xli] The work of this group, along with its associated partners and resources, provides a strong foundation for continued progress in strengthening Connecticut's children's behavioral health data infrastructure.

Section 5. Conclusions and Recommendations for Connecticut

Connecticut has numerous partners, invested stakeholders, and complex data systems that support the collection, management, and use of data to understand children's behavioral health and services. The state agencies maintain rich datasets that support service delivery for children, youth, and families, as well as program/system management, evaluation and planning, and research. The state has invested in integrated and interoperable data systems—including a HIE, APCD, and SLDS (P20 WIN)—that are valuable data sources. Both the APCD and P20 WIN have been operational for at least a decade, resulting in robust systems and support structures, and now house substantial amounts of data. Through these efforts, the state has gained significant infrastructure and related knowledge and experience.

Prior focus on the data infrastructure by the CBHPIAB's Data Integration Workgroup has laid the foundation for continued efforts to improve the infrastructure. OPM's DAPA division offers technical expertise and guidance to build needed capacity. Entities such as CHDI, through its Performance Improvement Centers, and Carelon Behavioral Health CT, through its Regional Network Managers, further support data use for quality improvement efforts.

Despite these strengths, notable gaps remain. Data are not available for all behavioral health services or all service recipients (e.g., individuals who do not have health insurance). None of the sources provide data on population needs (besides those served), and certain key data elements—such as waitlists—are not systematically collected. While Connie holds promise as a real-time data source, additional time and effort are needed to onboard agencies and implement all planned functionalities. **Even with the availability of many types of data related to children's behavioral health, it is challenging to find aggregate and trend data for needs, services, and performance that can be used for planning efforts, with data reports posted on several different websites** (both system and for the many committees and subcommittees supporting work in this area). **Currently, the APCD provides the only easily accessible, public-facing children's behavioral health dashboards to support system transparency and engagement, but the data are a few years behind.**

Connecticut has a strong data infrastructure to build upon to support children's behavioral health, along with many dedicated partners who have been engaging in system improvement efforts for a long time. To effectively assess performance and improve children's behavioral health services in the state, future efforts will need to be supported via governance, funding, collaboration/cooperation, and the development of a clear long-term plan. **Support from state leaders is critical for these efforts to be successful.** While the state has a strong foundation, gaps and challenges remain within existing systems, structures, and processes. Looking to innovations and best practices from other states can help inform Connecticut's next steps. To move forward, the TCB should consider implementing the following recommended strategy and activities.

Recommendation: Connecticut should establish a Children's Behavioral Health Data Workgroup with the expertise and capacity to plan and support strategies that strengthen the state's behavioral health infrastructure, along with robust reporting mechanisms to ensure accountability.

Workgroup Purpose and Structure

1) The Workgroup's **purpose and focus should be on data infrastructure and quality improvement planning and implementation activities that support a whole population focus with an equity lens**, with data intentionally collected, analyzed, and used to ensure that all children have access to effective behavioral health services.

2) This Workgroup's **roles and responsibilities should support planning and implementation** of activities that strengthen the State's data infrastructure and promote the effective use of data to enhance the children's behavioral health system. Activities should include identifying data gaps, advancing consistent performance measures, supporting quality improvement processes, and ensuring data are accessible and actionable.

3) The Workgroup's **membership should be representative**, including individuals from the TCB and CBHPIAB, individuals with lived experience (families and youth or young adults), and representatives of state agencies and organizations that contribute or steward key data sources.

4) The Workgroup's alignment should include **direct collaboration with OPM in support of the State Data Plan**, with Workgroup members and OPM staff serving as subject matter experts to leverage the State Data Plan and related expertise to advance the children's behavioral health data infrastructure.

Workgroup Priority Activities

To move Connecticut's children's behavioral health data infrastructure forward, the Workgroup should structure its work in sequenced stages. Initial efforts should focus on establishing a strong foundation and addressing low-hanging fruit, followed by capacity-building and long-term system enhancements. (The activities presented below are a suggested sequence, but the Workgroup's plan should consider any recent developments in state infrastructure, capacity, and resources or opportunities to move tasks forward.)

5) **Foundational Activities (Year 1)**
   The Workgroup should be required to:

   a) **Develop a 3- to 5-year data plan** that will:
      i) Advance the State's data-related agenda for children's behavioral health, with a focus on data collection, sharing, access, and use for quality improvement.
      ii) Support a whole population focus across all children and youth with behavioral health needs.
      iii) Frame strategies and approaches using an equity lens and a commitment to system of care values and principles.
      iv) Create systems, processes, and approaches for intentional collection, analysis, and use of data to support outcomes, including ensuring all children have access to effective behavioral health services.

   b) **Provide regular reporting** to the TCB and CBHPIAB (or their successors), including quarterly updates (at a minimum), presentations, and an annual report.

6) **Initial Activities and Low-Hanging Fruit (Years 1-2)**
   Key activities to be included in the Data Plan should begin with mapping and transparency efforts, and building a shared foundation for quality improvement.

   a) **Map data elements and uses** across current systems, including the data systems identified in this report and other relevant systems, to identify gaps.
      i) This map should be dynamic (revisited annually) and transparent (e.g., can be made available online through a centralized hub such as the Connecticut Open Data Portal managed by OPM's Data Policy and Analytics division).
      ii) Particular attention should focus on race and ethnicity, and other important indicators such as gender identity, sexual orientation, and religious affiliation.
      iii) An assessment of missing data for each element should be included, since the presence of a data element does not guarantee its usefulness for analysis.
      iv) Review how data are currently used for QA/QI across all system partners to build on existing processes, identify gaps in coverage or quality, and ensure alignment with best practices.

   b) **Identify performance measures** that align with the TCB's strategic goals and State priorities. This step should build on the data mapping output to establish consistent sources and definitions for the performance measures.

   c) **Prioritize filling critical gaps** in data collection and use of data for quality improvement. Examples of data gaps include waitlists, provider capacity, services with no available data, and data elements with high rates of missing information. The Workgroup should develop a plan and identify the resources needed to address those gaps, drawing on lessons learned from other states and sectors (e.g., Iowa's C3 project).

7) **Capacity-Building Activities (Years 2–3)**
   As the foundation is laid, the Workgroup should turn to strengthening data infrastructure capacity and analytic tools.

   a) **Identify opportunities to leverage P20 WIN, APCD, and Connie** for performance measures, analysis, and evaluations. With respect to the APCD and Connie, the Workgroup should promote behavioral health provider participation in these data systems and help to identify and resolve barriers to participation.

   b) **Develop and disseminate clear guidance on data sharing and consent.**
      i) Identify and assess privacy and consent processes for youth and families across agencies and systems. As Connecticut moves toward greater data integration and real-time exchange, coordinated approaches to consent will help to protect youth and family rights while supporting appropriate access to data for service coordination, evaluation, and quality improvement.
      ii) Create and distribute a government agency data sharing document for providers that outlines Connecticut's data sharing philosophy, legal structure, and benefits. An example of a provider letter is available in the work by Allegheny County, Pennsylvania.[3]

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[3] https://analytics.alleghenycounty.us/wp-content/uploads/2024/02/DHSInformationSharingPhilosophy-ProviderLetter.pdf

c) **Promote development of agency-specific dashboards** for performance management, QA, and CQI. All state agencies need robust tools to support their performance management and quality improvement efforts. Financial investment will be required to support development of these indicators and dashboards. OPM can share best practices and guidance to support these efforts.

d) **Consolidate online behavioral health data reporting** into a single centralized location, providing users with access to aggregated data, mapping tools, and basic training resources.

8) **Long-Term Enhancements (Years 3–5)**
Finally, the Workgroup should advance statewide transparency and innovation.

a) **Recommend development of additional public-facing dashboards** within the CT Open Data Portal that provide curated cross-agency views of children's behavioral health and services, including identified performance measures. The Workgroup should identify necessary dashboard content and functionalities to support analysis and use for quality improvement.

b) **Identify relevant laws and guidelines for AI use in Connecticut.** Assess the current use of AI tools among state agencies and behavioral health providers and recommend opportunities where AI can reduce administrative burden and improve practices. These efforts should be guided by transparency, privacy, accountability, and ethical standards.

c) **Ensure accountability and transparency** by supporting and promoting the use of public-facing dashboards and reports, maintaining regular updates, and providing opportunities for stakeholder feedback.

Connecticut has consistently invested in strengthening its data systems and partnerships to support children's behavioral health. These ongoing efforts have created a strong foundation, yet additional coordination and structure are needed to fully realize a modern, equitable, and transparent data infrastructure. Establishing a Children's Behavioral Health Data Workgroup with clear purpose, structure, and priority activities will support governance, coordination, and expertise needed to close critical gaps and promote effective use of data. With early attention to low-hanging fruit, sustained investment in capacity, and a commitment to transparency and accountability, Connecticut can ensure that data are used to drive continuous improvement and support access to effective behavioral health services for all children and families.

Appendix A. Definitions

Data Governance: The overall management of the availability, usability, integrity, quality, and security of data. The creation of policies, roles, and responsibilities ensures clarity and consistency regarding the purpose, use, and presentation of data.

Data Infrastructure: The systems, technologies, and processes for data collection, storage, management, processing, and analysis.

Data Linking: The process of merging one or more data sources based on common identifiers or using matching algorithms

Data Sharing: The act or process of providing access to data between entities (individuals, organizations, or systems).

Integrated Data System: A data system that combines multiple disparate sources of data into a consistent accessible structure.

Interoperability: The ability of systems to exchange and use information seamlessly via technical processes.

Performance Management: A structured process for setting goals, monitoring progress, and evaluating outcomes to enhance organizational or individual performance.

Quality Assurance (QA): The process of ensuring that a program and/or practice is being delivered and achieving outcomes according to defined standards.

Quality Improvement (QI) or Continuous Quality Improvement (CQI): A process designed to enhance the quality of a service, practice, or process. It focuses on areas needing improvement, implementing changes, and measuring the impact of those changes.

Appendix B. Profiles of Connecticut's Primary Children's Behavioral Health Data Systems & Partnerships

This appendix provides detailed overviews of Connecticut's primary children behavioral health data systems and partnerships. The summaries are based on interviews with the respective data system stewards and partners, materials they provided, information from their websites (when available), and their review and input on draft content.

Connecticut Behavioral Health Partnership

The Connecticut Behavioral Health Partnership (CT BHP) is a partnership among three state agencies—Department of Social Services (DSS), Department of Children and Families (DCF), and Department of Mental Health and Addiction Services (DMHAS)—that oversees and manages behavioral health services provided under Medicaid. Carelon Behavioral Health (Carelon BH CT) is the state-contracted Administrative Services Organization (ASO) working with the CT BHP. It is responsible for managing care and promoting improved access, quality, and outcomes. The ASO receives a biweekly feed of state Medicaid data, including claims, pharmacy data, and Medicaid enrollment, and a weekly refresh of eligibility data for all Medicaid recipients.[4] Carelon BH CT also supplements these data with additional sources, such as homelessness data, mortality data, service authorization data, and social determinants of health (SDOH) indicators. They use the data for multiple purposes—including (1) quality metrics reporting and (2) service delivery, performance management, and evaluation—which are summarized below.

Quality Metrics Reporting

Annually, the CT BHP ASO produces a set of required quality metrics, consisting of Healthcare Effectiveness Data and Information Set (HEDIS®) indicators and Centers for Medicare and Medicaid Services (CMS) Core Set of Behavioral Health Measures, other specific quality metrics, and hybrid metrics developed for state-specific use.

Populations included: The quality metrics cover Connecticut's total Medicaid population of over one million members. They apply only to services paid for through Medicaid and exclude individuals who receive state-funded services (unless they also bill Medicaid), as well as those who are privately insured or uninsured.

Types of data: The data used for these metrics consist primarily of Medicaid claims, supplemented with pharmacy, eligibility, and enrollment data (which contains names, demographics, and addresses). Additional datasets from state and private entities, as well as U.S. census-derived indicators, are also integrated when available. Examples include mortality data from the Department of Public Health (DPH) and housing status data from the Connecticut Coalition to End Homelessness (CCEH).

Primary purpose(s): The purpose of quality metrics in healthcare is to measure and evaluate the effectiveness, efficiency, and quality of care provided by healthcare organizations, with the goal of improving patient outcomes and ensuring accountability. HEDIS® and CMS Core Set measures enable Connecticut to benchmark system performance over time and against other states, regions, and the nation. Using dashboards developed by the ASO, each metric can be disaggregated by

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[4] A separate vendor manages Medicaid data collection.

race, ethnicity, and gender to support health disparity analyses. Annual HEDIS® results are regularly reported at the CT BHP Oversight Council and Adult and Child/Adolescent Quality, Access, and Policy Committees and are published in Carelon BH CT reports.[5]

Strengths: Quality metrics provide valuable insight into how practitioners, facilities, and systems, perform, making them essential for assessing service and system performance. Their strict measure specifications and regular updates maximize the accuracy and validity of these measures. Including state, regional, and national benchmarks allows for meaningful comparisons to other systems. All major healthcare systems and payers utilize these metrics, providing a common language and methodology for quality measurement. Results are also audited annually by NCQA and CMS to verify the accuracy and completeness of the data utilized and adherence to standardized calculation methods. Their frequent use in scientific research also adds to their value, as the metrics are often linked to real-world outcomes in healthcare settings.

Challenges and Considerations: Due to strict measure specifications, HEDIS® and CMS Core Set measures are computed annually and are not available in real time—though monthly estimates can be generated for monitoring and quality improvement purposes. There is a relative lack of measures focused on mental health and substance use disorders, compared to the number of medical measures. Even fewer metrics exist for children and adolescents, and none apply to children under age six. Most measures focus on healthcare processes—such as assessment completion, timely follow-up care, or monitoring of prescribed medications—rather than actual outcomes. Outcome measurement is limited, typically only present when lab data is used to measure metabolic changes underlying medical (but not behavioral health) disorders, such as changes in A1C levels for individuals with diabetes.

Service Delivery, Performance Management, and Evaluation

In conjunction with the CT BHP, the ASO supports individual care management, performance management, and quality improvement efforts with reporting (contractual and public health), data dashboards, cost analysis, and advanced data analytics. Carelon BH CT has developed high-level behavioral health system dashboards to track performance in four primary areas: Utilization, Quality Metrics, Population Health, and Spending, which is expressed as per member per month (PMPM) costs by level of care. These dashboards incorporate a health equity lens, allowing performance to be examined by race, ethnicity, gender, age, housing status, and other demographics and social determinants of health. A companion dashboard, the Population Profile, is produced annually and includes similar indicators, such as prevalence rates for mental health, substance use, and medical conditions, hybrid utilization measures, and medication usage. This information helps to guide improvements at both the system and program levels. Regional Network Managers use these dashboards in regular meetings with providers across various levels of care (e.g., inpatient care, emergency department services, extended day treatment programs) to establish and monitor performance goals and identify improvement strategies for each provider. In addition, advanced analytics are used to identify individual members and population groups at high risk for poor health outcomes (e.g., death, emergency department use, hospital admission). These analytics also support early detection of critical events or conditions (e.g., early termination from care, first episode psychosis, homelessness risk, metabolic syndrome). These insights contribute to population health assessment and are especially valuable in care management, helping to

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[5] Reports can be accessed from the CT BHP website: https://providers.ctbhp.com/quality-improvement/

identify individuals with complex or high-risk needs who may benefit from targeted interventions and supports.

Populations included: These data are limited to Medicaid members in Connecticut—just over one million individuals.

Types of data: The primary data source is Medicaid (as summarized above), supplemented with additional data related to SDOH—such as homelessness risk, area deprivation index, and child welfare involvement—as well as data on cost of care and service utilization trends. Data are stored at the person level, and identifiable information is available to ASO staff and to providers who are currently serving or have served a given individual (as allowed under HIPAA).

Primary purpose(s): The data serves multiple purposes, including individual care management; service network capacity and access assessment; service utilization management; quality management and reporting; data dashboard reporting; population health analysis; program evaluation; and advanced predictive analytics. The primary focus of these efforts is to improve services and outcomes for the Medicaid population.

Strengths: Medicaid covers a significant portion of Connecticut's population—nearly one-third of residents—and likely represents an even higher percentage of behavioral health service users, given the greater prevalence of behavioral health disorders among Medicaid recipients compared to the general population. Claims data is largely complete because reimbursement is tied to the accuracy and adequacy of claims submissions. The availability of identifiable data allows for individual care management and linkage with other datasets. The dataset is robust and continually enriched by integrating additional sources such as housing data, area deprivation indices, and mortality data. The CT BHP maintains a robust data infrastructure, supported by a dedicated team of IT, data management, analysis, and reporting professionals. This team ensures data quality and produces sophisticated reports for a range of purposes. Many of these reports are publicly available on the CT BHP website. Perhaps the greatest strength is the versatility of the data—it supports a wide range of functions essential to managing Medicaid behavioral health services.

Challenges and Considerations: As noted, the dataset is limited to Medicaid service recipients and does not include individuals with private insurance, Medicare, other forms of coverage, or the uninsured. While Medicaid claims data offers insight into clinical status, it lacks the depth of information typically found in electronic health records (EHRs)—such as care plans, standardized screening results, reasons for seeking treatment, and progress indicators. Additionally, the system does not support real-time reporting, lacks data on waitlists and staffing, and has limited service capacity data.

Department of Children and Families – Provider Information Exchange & Child Health and Development Institute – EBP Tracker

The Provider Information Exchange (PIE) is the Department of Children and Families' (DCF) data and reporting system for behavioral health, prevention, child welfare, and adolescent substance use disorder programs delivered by contracted community-based providers. Access to PIE is limited to DCF Program, Data Reporting and Evaluation, and Fiscal Services staff; contracted providers of services; and authorized program evaluators or Performance Improvement Center staff (typically only for de-identified data). DCF contracts with the Child Health and Development Institute (CHDI) to support quality improvement efforts for Outpatient Psychiatric Clinics for Children (OPCC) and some community-based evidence-based treatments. CHDI also operates PICs for Mobile Crisis Intervention Services, Urgent Crisis Centers for Children, and Care Coordination. Through these initiatives, they provide and/or monitor training, manage and report on EBP-related data (utilization, fidelity, and outcomes), and support quality improvement activities across the state. Additionally, DCF contracts with CHDI to support and manage Evidence-Based Practice Tracker (EBP Tracker)[6] functions and data to support robust data collection for these services used for CQI and evaluation.

Populations included: The populations included in PIE, as well as the EBP tracker, are any child or caregiver who has been a recipient of one of the community-based service types contracted by DCF. As of July 2024, PIE also includes data entered by Carelon Behavioral Health CT for the Voluntary Care Management (VCM) and Integrated Family Care and Support (IFCS) contracted services as part of their Prevention Care Management Entity (PCME) program.

Types of data: PIE captures data on types of referrals made, populations served, services provided within an episode of care, some model fidelity metrics, service outcomes, service satisfaction, program completions, and results of standardized screening and assessment tools. It can track the time between when a referral was received and/or entered into the system and when various treatment components (e.g., assessment, treatment episode start, discharge) are completed. There are also records of referrals and services that were needed but not available. Service providers enter data into PIE directly through a web-based application or by submitting batch files from their EHR or other data systems. Data is managed at the individual level and is identifiable to authorized users. The use of web services for automated data integration is being tested for one service (Functional Family Therapy-Foster Care) and for feasibility for other services in the future.

Primary purpose(s): The primary purpose of PIE is to collect and manage data on populations served by DCF programs, including information on service utilization, fidelity, and outcomes. This data is used for performance monitoring and management purposes. Additional purposes for PIE data include: efficient development of both aggregate and detail-level datasets required for annual reporting by the Mental Health Block Grant (MHBG); producing detail-level datasets required for reporting and reimbursement claiming under the Temporary Aid to Needy Families (TANF) and Family First Prevention Services Act (FFPSA) grants; and aggregate reporting required by C.G.S. Section 17a-6e concerning Racial Justice Data, Activities and Strategies. The DCF Service Outcomes Advisory Committee also uses program data to assess the efficacy of the contracted service array in meeting the needs of the populations served by the Department.

Strengths: PIE data is valuable for understanding the service needs of those served; assessing the effectiveness of services by service type, provider, and site; and tracking service recipient progress over time. It also includes the capacity to report data by children served, caregivers (including parents), and for some programs' linked child-caregiver dyads. It is one of the few data systems to contain family relationship data that can support a two-generational approach to analysis. PIE is

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[6] EBP Tracker includes a version within PIE (for Trauma-Focused Cognitive Behavioral Therapy [TF-CBT] and the Modular Approach to Therapy for Children [MATCH]) and for a separate version of the EBP Tracker operated by CHDI for the school-based EBPs (for Cognitive Behavioral Intervention for Trauma in Schools [CBITS] and Bounce Back).

also included in P20 WIN, enhancing opportunities for cross-agency data integration. CHDI produces reports for DCF, providers, and stakeholders to support both systematic reporting and ad hoc requests. In addition, CHDI operates PICs that use robust processes to support quality improvement efforts for specific services. There are also some publicly available reports from their quality improvement initiatives that summarize comprehensive behavioral health services data.

Challenges and Considerations: PIE does not track program capacity, staffing, or waiting lists, nor is there closed-loop referral capacity. While there is some capacity to assess data in real-time for most built-in reports (there is a 3-hour delay until data extracts are updated after data entry), the timeliness of that data depends on when the data has been entered in relation to when the service event occurred (e.g., referral, admission, completed evaluation). There are no public-facing reports in PIE, but ad hoc reports can be generated for the legislature, Connecticut's Office of Policy and Management (OPM), other stakeholders, and service providers. DCF staff can also run reports at the program, provider, and site levels. Until recently, DCF has had limited staffing to support data management and analysis, but they now have a Data Scientist and two Research Analysts on staff who can dedicate part of their time to PIE data analysis. While data visualization and dashboarding capabilities have been constrained in the past, DCF is developing its reporting capacity in these areas.

Judicial Branch Court Support Services Division – Contractor Data Collection System

The Judicial Branch Court Support Services Division (JB-CSSD, or Division) oversees pretrial services, family services (including divorce and domestic violence matters), probation supervision of adults and juveniles, as well as two secure juvenile residential centers. JB-CSSD maintains the Contractor Data Collection System (CDCS) to collect individual-level information about services delivered by JB-CSSD-contracted providers, including behavioral health and prevention services funded by the Division for court-involved youth. The following description is specific to court-involved youth services.

Populations included: CDCS data is limited to youth receiving services funded or provided by JB-CSSD. These services include Functional Family Therapy (FFT), Multisystemic Therapy (MST), Multisystemic Therapy for Emerging Adults (MST-EA), mentoring, services for youth exhibiting inappropriate sexual behaviors, court assessments, educational supports, and residential service programs.

Types of data: The CDCS contains contract and service data on funded behavioral health and prevention services available to the youth served by the Division. It tracks data related to referrals, assessments, youth served, types and duration of services provided, service and program completion, and outcomes. Referral tracking includes a closed-loop tracking system.

Primary purpose(s): The primary purpose of the CDCS is to monitor and improve service utilization, provision, quality, and outcomes of JB-CSSD-contracted behavioral health and prevention services for youth. Standardized aggregate reports are available to JB-CSSD staff and ad hoc reports are occasionally presented at the CT Juvenile Justice Policy and Oversight Committee (JJPOC).

Strengths: The CDCS meets JB-CSSD's needs in managing the array of services funded by the Division. The system enables the computation of utilization rates and trend analysis and includes youth demographics, disproportionality analyses, risk reduction metrics, and ad hoc reporting. It can be used for both youth- and program-level reporting. JB-CSSD has recently joined P20 WIN, enhancing data-sharing capabilities. According to JB-CSSD service leadership, they also recently began a process to start sharing youth-level data with DCF to better coordinate services for "crossover" youth and families who are involved with the child welfare and juvenile justice systems.

Challenges and Considerations: A primary limitation of the CDCS is that it only stores information on services funded by JB-CSSD, while court-involved youth also commonly access behavioral health and prevention services funded through other sources. Ultimately, data for these young people are stored in multiple other data systems, including DCF PIE and the Medicaid claims database managed by Carelon BH CT. The available referral tracking is similarly limited to relatively few programs/services. Real-time data reporting via dashboards is not currently available. Staff resources to perform additional analyses or develop data visualizations are limited. No dashboards or reports are currently published on the JB-CSSD website or otherwise available to the public other than through ad hoc reporting. Some external data system reports, such as those related to FFT and MST implementation, may be available to JB-CSSD but are not integrated into the CDCS.

Preschool through 20 Workforce Information Network (P20 WIN)

P20 WIN is a state data integration platform managed by CT OPM to produce integrated datasets primarily for analysis and research purposes. Operational since 2014, P20 WIN has a membership of 15 state agencies, institutions of higher education, and nonprofits (see side box). P20 WIN releases integrated datasets following review and approval of a data request from a participating agency or researcher that conforms with the standards set by the organizations. The Department of Labor is the Data Integration Hub for P20 WIN and conducts all data matching for approved data requests. P20 WIN has an Executive Board and Data Governing Board that develop and implement the policies and procedures necessary to manage an integrated data system, as well as Data Stewards from each participating agency who are responsible for maintaining and creating datasets for approved data requests.

P20 WIN Member Agencies/Institutions

- Office of Early Childhood (OEC)
- State Department of Education (SDE)
- University of Connecticut
- Department of Labor (DOL)
- Connecticut Conference of Independent Colleges (CCIC)
- Connecticut State Colleges and Universities (CSCU)
- Department of Social Services (DSS)
- Department of Children and Families (DCF)
- Office of Higher Education (OHE)
- Connecticut Coalition to End Homeless (CCEH)
- Department of Mental Health and Addiction Services (DMHAS)
- Connecticut Technical Education and Career System (CTECS)
- Judicial Branch Court Support Services Division (JB-CSSD)
- Department of Correction (DOC)
- Office of Workforce Strategy (OWS)

Populations included: The population represented includes individuals involved with any of the 15 participating agencies.
Types of data: Data sources are administrative datasets from Connecticut's state agencies and two nonprofit organizations (CCEH and CCIC). The datasets cover educational, vocational, and

supportive services that include healthcare-related information (e.g., Medicaid claims, receipt of early childhood developmental support, mortality, and opioid overdose indicators). The system does not include electronic healthcare records. Data is provided at the person level, but deidentified, and "data are never used to identify specific individuals." P20 WIN can also integrate data across families to support a family-based two-generational analysis approach.

Primary purpose(s): The primary purpose of P20 WIN is to support research, analysis, and reporting that involves multi-agency data. It is used by state agencies or research organizations to explore critical policy questions, fulfill federal and state reporting requirements, and support research and analysis on a variety of topics.

Strengths: P20 WIN contains multiple statewide datasets that support longitudinal and cross-system analysis. It includes a wealth of data related to children's behavioral health, including contracted service provider data, SDOH indicators, and other measures of well-being and functioning for children, youth, and young adults. Data from the system can be used to understand how various childhood disorders, conditions, or service utilization patterns are related to agency involvement(s), educational, vocational, and other social indicators and outcomes, which could inform programmatic needs, cross-agency program development, and policy development. Importantly, there is no cost to access the data.

Challenges and Considerations: A limitation of P20 WIN is the relative lack of healthcare data such as non-Medicaid insurance claims or EHR data. Because all data is de-identified, the system cannot support individual client care or case management. Concerning behavioral health services, there is no capacity for real-time reporting or to track waiting lists, nor is staffing or service capacity data available.

All-Payer Claims Database

Established in 2012 and managed by the Connecticut Office of Health Strategy (OHS), the All-Payer Claims Database (APCD) houses over one billion healthcare records for individuals with insurance coverage in Connecticut. Only insurers covering at least 3,000 Connecticut residents are required to submit data to the APCD, which now contains claims data for more than 2 million residents. The APCD Advisory Group (a subcommittee of the Health Information Technology Advisory Council [HITAC]) provides strategic guidance, recommendations, and ongoing support to the HITAC and OHS to support APCD implementation. There are also subcommittees that manage data privacy, security, and data release policies and procedures.

Populations included: By statute, payers of healthcare services—including private insurers, third-party administrators, pharmacy benefit managers, Medicaid, Medicare Parts C and D, and other government-sponsored health plans—must submit individual-level healthcare claims data to the APCD.

Types of data: The APCD contains data on claims, eligibility, and providers for services provided. It includes information on referring, rendering, and billing providers; clinical diagnoses and services; and outpatient prescription medications. It excludes medical outcomes such as results of examinations, laboratory tests, and imaging. While the data includes individual-level information, only state agencies can access datasets with personally identifiable information; all other users are limited to de-identified data.

***Primary purpose(s)*:** The APCD is primarily used to support policy research and analysis that assesses healthcare cost, safety, quality, transparency, access, utilization, and efficiency at all levels of the healthcare system.

Strengths: From a population perspective, the APCD is the most comprehensive Connecticut-specific healthcare dataset of those reviewed, given the size and breadth of the combined coverage groups and the number of individuals included. It has been maintained since 2012, so there have been many years of data collection and efforts to address data processing and quality. Claims data is also typically more complete than other data sources due to being tied to payment. The data is uniquely valuable for conducting cost and efficiency analyses, and for evaluating the quality of care across multiple payers and compared to national, regional, and state benchmarks. It also supports analysis of limited access-to-care data related to timely follow-up after healthcare encounters (e.g., after an emergency department visit or hospital discharge). Fees for accessing and receiving aggregated data outside the portal are published in a fee schedule on the system website. They are reasonable, ranging from $750 to a maximum of $12,000 for initial extracts, depending on the entity requesting the data and the size and scope of the data requested. The recently released APCD Behavioral Health Dashboards provide summary information on diagnoses, utilization of care, cost of care, co-occurring conditions, and social drivers of health. Several indicators can be disaggregated by age groups (including children) and other demographic factors, supporting more targeted analysis and planning. However, there is a notable lag in reported data.

Challenges and Considerations: The typical lag time between claims received and their readiness and availability for reporting is 3 to 6 months, so there is no capacity for real-time reporting within the APCD. Further, the data does not include the kinds of clinical details accessible in a typical EHR (e.g., clinical assessment results, care plans, clinical status beyond diagnosis), it does not include waitlist information, and it is not designed for use in individual care management given that it is not typically provided with personal identifiers. The APCD does not include data from most self-funded (ERISA) employer health plans, which account for more than half of Connecticut's privately insured population, representing a substantial gap in coverage. There is also inconsistency in the degree of data provided across participating commercial payers, which could negatively impact data completeness.

Connie

Connecticut's Health Information Exchange (HIE) is operated by Connie, a freestanding not-for-profit healthcare company that is overseen by the OHS and advised by HITAC. Connie went live in 2021, though there are still features and functionalities in development that are expected to launch in the near future.

Populations included: According to CT statute, any Connecticut-licensed healthcare provider who utilizes an electronic health record (EHR) system must participate and submit data to the State's HIE. Hospitals and clinical labs were required to apply to begin participation no later than May 3, 2022, and all other healthcare providers were required to have applied by May 3, 2023. At the time of this report, not all providers are compliant. Behavioral health service providers have lagged behind other specialties due to some not utilizing EHRs, concerns and confusion regarding the ethics and legality of sharing protected health information with Connie, and anticipated costs of preparing their EHRs for data extract submissions[7] (as reported by representatives of Connie consulted for this report). As of October 2024, according to data supplied by Connie, other than hospital systems and Federally Qualified Health Centers (FQHCs) that provide behavioral health services, only 17 other behavioral health providers are currently participating and providing data. This is a small fraction of all licensed behavioral health providers. In addition, federal legislation under 42 CFR Part 2 imposes more restrictions on information sharing related to substance use disorder services or diagnoses, which may make the sharing of SUD data less likely.

Types of data: Data managed by Connie is derived from healthcare providers' submissions of electronic health records, which include clinical data (but not therapy notes), Continuity of Care Documents (CCDs), laboratory results, pharmacy data, and real-time notifications of hospital admission, discharge, and transfer (ADT) events. Patients can opt out of having their health information shared with their other treating providers through Connie. However, personal health information with additional protections beyond what is described within HIPAA (e.g., substance use disorder treatment data under 42 CFR Part 2 rules) requires individual consent to be accessed by providers and other users. Generally, data is available near real time, including ADT, CCDs, and lab data, though some data elements may have a time lag until reporting, particularly from smaller organizations.

Primary purpose(s): Presently, Connie is primarily used to manage individual care and coordinate service provision across providers. Users with approved access to the Connie Portal can view health records for individuals they serve and obtain diagnostic information, service records, pharmacy and laboratory data, and other information from any provider that has served that individual in the past or is currently serving them. If the user is also approved to receive ADT data, they will be alerted in real time when a client on their roster is admitted, discharged, or transferred to/from a hospital inpatient unit or emergency department. Connie also provides outbound data feeds to participating organizations, and there is a plan for entities to be able to receive parsed, aggregated data feeds from CCDs shared with Connie that are more useful for conducting population risk analyses or research (beyond the record view access through the portal), though that latter functionality is not currently live.

Strengths: Connie is one of the only public sources currently available for real-time behavioral health data in Connecticut.[8] Once Connie is fully implemented and most behavioral health providers participate, it can be used to improve care management and coordination between behavioral health and medical services, regardless of the payer. Robust processes are in place to assess the completeness and quality of data. A newly implemented population analysis tool may help assess data by provider or system or otherwise aggregate data for other purposes (e.g., research, risk profiling). Connie is also the only data system reviewed that contains clinical data beyond what can be ascertained from claims. It has the potential to complement data from claims-based systems (i.e., APCD, CT BHP).

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[7] Many behavioral health providers have not been eligible for Health Information Technology incentive programs (i.e., funding) to support interoperability (i.e., connecting with HIEs), which has been available to medical providers.

[8] The CT Hospital Association also has the capacity for delivering ADT data in real-time.

***Challenges & Considerations**:* Although Connie has the potential to become a substantial repository and supplier of behavioral health data, it currently represents a relatively small portion of the population that utilizes behavioral health services and is likely missing a significant amount of the available behavioral health data contained in EHRs. This limits its usefulness to evaluate children's behavioral health services in Connecticut until it is fully implemented, and more behavioral health providers submit their data. The system also does not maintain data of current interest to the TCB, including wait lists, staffing, service availability, and other data that would help track capacity and access. Another potential limitation is the fees charged for access to ADT data or aggregated reports from Connie. Presently, there is no published fee schedule for reporting as Connie is not charging mandated providers to receive data. Fees are assigned on a case-by-case basis to non-mandated entities and are dependent on the entity requesting the data and the nature of the data supplied. EHRs may also charge fees to providers for preparing their EHRs for submission, which could create challenges to use, particularly for smaller providers.

Appendix C. Children's Behavioral Health Survey Data Sources

Survey Name	Purpose / Content	Link
National Survey of Children's Health (NSCH)	Provides nationally- and state-representative data on the health and well-being of children ages 0–17, including physical/mental health, access to care, family and community context.	NSCH Data Resource Center
National Survey on Drug Use and Health (NSDUH)	Collects national and state-level data on substance use, mental health, and service utilization among youth (12+) and adults.	SAMHSA NSDUH
Youth Risk Behavior Surveillance System (YRBSS)	Monitors health behaviors among high school students, including mental health, substance use, violence, and protective factors. Conducted by CDC with state/local data.	CDC YRBSS
Behavioral Risk Factor Surveillance System (BRFSS)	State-level survey of adults (18+) that includes some child health data through child-focused modules; can provide parent-reported data on children's health and service use.	CDC BRFSS
Connecticut School Health Survey (CSHS)	State-specific survey (YRBSS) collecting data on student health behaviors and risk/protective factors, including mental health and substance use.	CT School Health Survey

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Works Cited

[i] Office of the National Coordinator for Health Information Technology. (n.d.). *Benefits of EHRs.* HealthIT.gov. https://www.healthit.gov/topic/health-it-and-health-information-exchange-basics/benefits-ehrs.

[ii] Dougherty, M., McGavin, R., Pilar, M., Horvath, M., & Brown, S. (2024). *Health information technology adoption and utilization in behavioral health settings* (Final Report). RTI International. Retrieved from https://aspe.hhs.gov/reports/hit-adoption-behavioral-health

[iii] Shaw, T., Farrell, J., & Kolivoski, K. (2016, May). *Big data in human services* [White paper]. National Technical Assistance Network for Children's Behavioral Health. Retrieved from http://files.ctctcdn.com/57c33206301/8d64082d-12e4-467d-b4dc-6f8c81f1ce71.pdf

[iv] Fitch, D. (2011). *Controlling their story: Protecting the privacy of foster care youth.* In *Child Welfare 360°: Child Welfare and Technology* (CW 360°). Center for Advanced Studies in Child Welfare, University of Minnesota.

[v] Diebold, G. (2023, September 25). *Overcoming barriers to data sharing in the United States.* Center for Data Innovation. Retrieved from https://www2.datainnovation.org/2023-data-sharing-barriers.pdf

[vi] von Zastrow, C., & Perez Jr., Z. (2024, May 9). *50-state comparison: Statewide longitudinal data systems*. Education Commission of the States. Updated June 4, 2024. https://www.ecs.org/50-state-comparison-statewide-longitudinal-data-systems-2024/

[vii] von Zastrow, C. (2024, May 9). *The statewide longitudinal data system landscape* [Policy guide]. Education Commission of the States. Updated June 4, 2024. https://www.ecs.org/the-statewide-longitudinal-data-system-landscape/

[viii] National Center for Education Statistics. (n.d.). *About the SLDS grant program*. U.S. Department of Education. https://nces.ed.gov/programs/slds/about_SLDS.asp

[ix] Porter, J., Love, D., Peters, A., Sachs, J., & Costello, A. (2014, January). *The basics of all-payer claims databases: A primer for states*. Robert Wood Johnson Foundation.

[x] APCD Council. (2024). *State efforts*. APCD Council. https://www.apcdcouncil.org/state/map

[xi] Office of the National Coordinator for Health Information Technology. (n.d.). *What is HIE?* HealthIT.gov. https://www.healthit.gov/topic/health-it-and-health-information-exchange-basics/what-hie

[xii] Definitive Healthcare. (2024). Number of health information exchanges by state. Available from: https://www.definitivehc.com/resources/healthcare-insights/number-health-information-exchanges-by-state

[xiii] Actionable Intelligence for Social Policy. (n.d.). *About us*. University of Pennsylvania. https://aisp.upenn.edu/about-us/

[xiv] Allegheny County Department of Human Services, Office of Analytics, Technology & Planning. (2018, July). Allegheny County Data Warehouse [Technical report]. Allegheny County Department of Human Services. Retrieved from https://www.alleghenycountyanalytics.us/wp-content/uploads/2018/07/18-ACDHS-20-Data-Warehouse-Doc_v6.pdf

[xv] Allegheny County Department of Human Services, Office of Analytics, Technology & Planning. (2024, February 7). Allegheny County Data Warehouse [Technical report]. Allegheny County Department of Human Services. Retrieved June 13, 2025, from https://analytics.alleghenycounty.us/wp-content/uploads/2024/02/24-ACDHS-03-Datawarehouse.pdf

[xvi] Allegheny County Department of Human Services. (n.d.). *DHS data warehouse*. Allegheny County. https://www.alleghenycounty.us/Services/Human-Services-DHS/DHS-News-and-Events/Accomplishments-and-Innovations/DHS-Data-Warehouse

[xvii] Allegheny County Department of Human Services. (2013, December). *Human Services Integration Fund (HSIF)* [Report]. Allegheny County Department of Human Services.

[xviii] Revenue and Fiscal Affairs Office. (n.d.). *Home*. South Carolina Revenue and Fiscal Affairs Office. https://rfa.sc.gov/

[xix] South Carolina Revenue and Fiscal Affairs Office. (2020, May 11). SC Integrated Data System: Supporting the COVID-19 response [Conference presentation]. accelerateSC, Columbia, SC. Retrieved from https://rfa.sc.gov/sites/default/files/2021-02/SC%20Integrated%20Data%20System-Supporting%20the%20COVID-19%20Response%20%20AccelerateSC%20%20%205-11-20.pdf

[xx] Kitzmiller, E. M. (2014, March 1). IDS case study: The Circle of Love: South Carolina's Integrated Data System [Case study]. Actionable Intelligence for Social Policy, University of Pennsylvania. Retrieved from https://aisp.upenn.edu/wp-content/uploads/2015/08/SouthCarolina_CaseStudy.pdf

[xxi] South Carolina Revenue and Fiscal Affairs Office. (2024). Available from: https://rfa.sc.gov/

[xxii] Center of Health Information and Analysis. (n.d.). *Behavioral health in Massachusetts*. CHIA. https://www.chiamass.gov/behavioral-health-in-massachusetts

[xxiii] Iowa Child Care Connect. (n.d.). *Welcome to Iowa Child Care Connect*. https://iachildcareconnect.org/

[xxiv] Davidson, N. (2024, September 23). *Can real-time state data ease parents' child-care woes?* GovTech.https://www.govtech.com/biz/data/can-real-time-state-data-ease-parents-child-care-woes

[xxv] Robila, M., & Robila, S. A. (2020). Applications of artificial intelligence methodologies to behavioral and social sciences. *Journal of Child and Family Studies, 29,* 2954-2966. https://doi.org/10.1007/s10826-019-01689-x

[xxvi] Graham, S., Depp, C., Lee, E. E., Nebeker, C., Tu, X., Kim, H. C., & Jeste, D. V. (2019). Artificial intelligence for mental health and mental illnesses: An overview. *Current Psychiatry Reports, 21*(11)*,* 1-18. https://doi.org/10.1007/s11920-019-1094-0

[xxvii] Limpanopparat, S., Gibson, E., & Harris, A. (2024). User engagement, attitudes, and the effectiveness of chatbots as a mental health intervention: A systematic review. *Computers in Human Behavior: Artificial Humans, 2*(2), 100081. https://doi.org/10.1016/j.chbah.2024.100081

[xxviii] Alowais, S. A., Alghamdi, S. S., Alsuhebany, N., Alqahtani, T., Alshaya, A. I., Almohareb, S. N., ... & Albekairy, A. M. (2023). Revolutionizing healthcare: The role of artificial intelligence in clinical practice. *BMC Medical Education, 23*(1), 689. https://doi.org/10.1186/s12909-023-04698-z

[xxix] Rozony, F. Z., Aktar, M. N. A., Ashrafuzzaman, M., & Islam, A. (2024). A systematic review of big data integration challenges and solutions for heterogeneous data sources. *Academic Journal on Business Administration, Innovation & Sustainability, 4*(4), 1-18. https://doi.org/10.69593/ajbais.v4i04.111

[xxx] Noam, K. R., Schmutte, T., Bory, C., & Plant, R. W. (2024). Mitigating racial bias in health care algorithms: improving fairness in access to supportive housing. *Psychiatric Services, 75*(11), 1167-1171. https://doi.org/10.1176/appi.ps.20230359

[xxxi] Vial, T., & Almon, A. (2023). Artificial intelligence in mental health therapy for children and adolescents. *JAMA Pediatrics, 177*(12), 1251-1252. https://doi.org/10.1001/jamapediatrics.2023.4212

[xxxii] Siala, H., & Wang, Y. (2022). SHIFTing artificial intelligence to be responsible in healthcare: A systematic review. *Social Science & Medicine, 296,* 114782. https://doi.org/10.1016/j.socscimed.2022.114782

[xxxiii] The Council of State Governments. (2023, December 6). *Artificial intelligence in the States: Emerging legislation.* Council of State Governments. https://www.csg.org/2023/12/06/artificial-intelligence-in-the-states-emerging-legislation/

[xxxiv] Illinois Department of Human Services. (n.d.). *Welcome to BEACON*. https://beacon.illinois.gov/

[xxxv] Clear Impact. (n.d.). *Results-Based Accountability*. Clear Impact. https://clearimpact.com/results-based-accountability/

[xxxvi] Clear Impact. (n.d.). *Results-Based Accountability*. Clear Impact. https://clearimpact.com/results-based-accountability/

[xxxvii] National Committee for Quality Assurance. (n.d.). *HEDIS measures and technical resources*. NCQA. https://www.ncqa.org/hedis/measures/

[xxxviii] Centers for Medicare & Medicaid Services. (n.d.). *Children's health care quality measures*. In *Adult and Child Health Care Quality Measures*. https://www.medicaid.gov/medicaid/quality-of-care/performance-measurement/adult-and-child-health-care-quality-measures/childrens-health-care-quality-measures/index.html

[xxxix] Vanderploeg, J. J. (2024). Infrastructure development in children's behavioral health systems of care: Essential elements and implementation strategies. *npj Mental Health Research, 3*(1), 55. https://doi.org/10.1038/s44184-024-00102-w

[xl] Connecticut Behavioral Health Plan for Children Workgroups. (n.d.). *Data integration*. In *Connecticut's Plan*. Plan 4 Children. https://plan4children.org/connecticuts-plan/behavioral-health-plan-workgroups/data-integration/

[xli] Child Health and Development Institute of Connecticut, Inc. & Department of Children and Families. (2021). *Children's Behavioral Health Plan Implementation: Data integration workgroup report.* Available from: https://plan4children.org/wp-content/uploads/2022/01/Data-Integration-Workgroup-Report-12.17.21.pdf