

Texas Behavioral Health Integrated Provider System (BHIPS)

Edited by:

National Association of State Alcohol and Drug Abuse Directors, Inc. (NASADAD)

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Abstract

This is a comprehensive review and analysis of the Texas Behavioral Health Integrated Provider System (BHIPS). BHIPS is the Web-based client and facility level data collection and reporting scheme used by the Texas Department of State Health Services (DSHS) Division of Mental Health and Substance Abuse Services (DMHSAS) to meet the myriad of information management systems demands placed on the publicly funded substance abuse prevention and treatment services in the State. Since it has been suggested that BHIPS might readily lend itself to adaptation in other State data infrastructures with minimal capital outlay, the report focuses on BHIPS utility in terms of current and anticipated data collection and reporting burdens, its transportability and its scalability. Attention to the benefits of BHIPS in regard to its clinical functionality is also examined.

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Executive Summary

The document is a compilation of a brief introduction and four distinct reports, each reflecting a different perspective on the Texas Behavioral Health Integrated Provider System (BHIPS) each informed by distinct areas of expertise:

Report #1: BHIPS - A Valuable Tool for Improving the Delivery of Substance Abuse Treatment Services. Prepared and submitted by Kathleen Nardini, MA and Colleen O'Donnell, MSW of the National Association of State Alcohol and Drug Abuse Directors (NASADAD, Inc.) this report explores the utility of BHIPS for clinicians, clients, and program managers and the how BHIPS can improve clinical practice and client and system outcomes.

Report #2: The Texas Behavioral Health Integrated Provider System (BHIPS) Project Synopsis. Prepared and submitted by John Keppler, M.D., Clinical Policy and Planning, and Charlesta K. Lee, Software Development Project Leader, this document provides a comprehensive review of the system provided by two individuals closely involved in its development. It includes an overall summary of BHIPS, a discussion of where the State AOD Agency falls in the DHHS organizational structure, general issues related to the management of the public prevention and treatment system's clients, how the BHIPS project was organized and implemented, its specific functions, its technical specifications and its demonstrated value in terms of improved service delivery and return on investment.

Report #3: The Technical Assistance Report for the Performance Management Technical Assistance Coordinating Center (PM TACC). Prepared and submitted by Dennis Nalty, Ph.D., this report provides a review and analysis of BHIPS, but in the context of the ability of BHIPS to meet current and anticipated NOMs reporting requirements, and SOMMS participation requirements.

Report #4: Transferring the BHIPS System to Other States: Technical Review. Prepared and submitted by Casey Kochmer of Johnson, Bassin and Shaw, Inc. under subcontract to PM TACC (see below), this reports provides information needed by State Management Information Systems administrators to quickly determine the feasibility of adapting BHIPS for use in their own State.



Introduction

The Behavioral Health Integrated Provider System (BHIPS) is Web-based, open-source software that allows behavioral health providers to integrate tracking, clinical, and billing data into a comprehensive behavioral health service delivery system. Developed and implemented by the Texas Department of State Health Services (DSHS), its architects successfully leveraged scarce financial resources to develop and deploy a comprehensive clinical and administrative information system.

Because it is a Web-based system accessed via the Internet, the only elements needed to use BHIPS are a personal computer, access to the Internet, and a standard Internet browser. No local file servers are necessary for an organization to access the system. Because it is built on open source code, it has the potential to be modified to address individual State needs.

From its inception, BHIPS has been a “work in progress.” The system can be rolled out and adapted in response to changing needs. In fact, one of the most interesting aspects of BHIPS development is the manner in which continuous, open and frank dialogue between the end users and the system developers is used to inform system evolution.

In order to document this system, the National Association of State Alcohol and Drug Abuse Directors, Inc. (NASADAD) made a formal request to the Texas Deputy Commissioner for Behavioral and Community Health Services David Wanser, Ph.D. to be allowed to visit Texas and interview system developers and users in a series of on-site visits.

With assistance from the Substance Abuse and Mental Health Services Administration’s Center for Substance Abuse Treatment (SAMHSA/CSAT) Division of State and Community Assistance (DSCA), NASADAD coordinated project activities with representatives from the Performance Management Technical Assistance Coordinating Center (PM TACC), a SAMHSA initiative.

On-site visits were conducted on March 29-30 2006, at State offices in Austin, Texas, and at treatment provider facilities in the Austin area. The site visits team was composed of Colleen O’Donnell, MSW (Former Assistant Director, Research and Program Application, NASADAD), Kathy Nardini, MA (Director, Research and Program Applications, NASADAD), Dennis Nalty, Ph.D. (performance measurement consultant, American Institutes for Research [AIR]), and Casey Kochmer, BS, BA (technology consultant, Johnson, Bassin, and Shaw, International [JBS]).

It is hoped that this product will serve as a resource for both SAMHSA and for NASADAD members, providing:



- An assessment of the utility of BHIPS from the perspective of not only the State AOD Agency, but from that of the clinician and the client, provider, and program manager.
- A reference to inform discussion and observation of State progress in the building of data infrastructure to support reporting of NOMs data.
- A tool for the analysis of current State data collection and reporting systems and evaluation of alternative systems, with an eye towards meeting NOMs and SOMMS data collection and reporting requirements, along with State level requirements.



REPORT #1:

BHIPS - A Valuable Tool for Improving the Delivery of Substance Abuse Treatment Services

Kathleen Nardini, MA and Colleen O'Donnell, MSW
National Association of State Alcohol and Drug Abuse Directors, Inc.

Introduction

A goal of the Texas Department of State Health Services (DSHS) Division of Mental Health and Substance Abuse Services (DMHSAS) is to promote transformation of the Texas behavioral health system to build a solid foundation for delivering evidence-based mental health and substance abuse services, foster recovery, improve quality of life, and meet the multiple needs of clients when and where they present for services. To do this, DSHS is using four strategies to guide its efforts that are recommended by the Institute of Medicine in *Crossing the Quality Chasm*:

- Apply evidence to health care delivery,
- Use information technology,
- Align payment policies with quality improvement,
- Prepare the workforce.

These four strategies are intended to change the environment, and provide the opportunity to transform behavioral health services in Texas by redesigning the framework, the content, and the culture of behavioral health services provided throughout the state. The intent is to move the system from disparate programs to a coordinated system of care that offers behavioral health promotion, prevention and treatment services to Texans across the life span.

In support of this goal and using the information technology strategy, DSHS developed the Behavioral Health Integrated Provider System (BHIPS), a web based computer system that is designed for use by DSHS funded providers as they deliver services to clients who have substance use disorders. BHIPS is a clinical tool that assists the clinician in case management and automates the individual client record which benefits clinicians, the clients and program managers. Demographic, service, and clinical data is entered only once into the system and is used to monitor client progress, track services, report State and Federal data as required, and bill for services delivered. Management reports are generated that provide analysis of financial information and provider performance. These reports assist the State and providers to manage for results and improve client services and outcomes as they use a continuous quality improvement (CQI) approach.

Dave Wanser, Ph.D., Deputy Commissioner of Behavioral and Community Health Services, provided executive leadership support as John Keppler, M.D., the Texas Clinical Director, and



Charlesta Lee, the Software Development Project Leader led the BHIPS development effort. Providers were included in the development process and assisted in pilot projects to test the system. The system is widely accepted and used by providers, and training and technical assistance is readily available. The system does not require any unnecessary steps and reduces errors and costs. It has easy to use features such as storing information as you enter and leave the system, automatically including data from the assessment function in the treatment plan, allowing clinicians to update the assessment plan periodically, and providing real time feedback.

Value of BHIPS for Clinicians

BHIPS promotes and ensures the professionalization and standardization of clinical practices and documentation in Texas, the second biggest State in the US, with one of the largest treatment populations in the country. The clinician uses BHIPS as a tool to guide the clinical interview and implement best practices, capture client data, monitor client progress, and update client information as the client receives needed services. The clinician uses a well structured, standard approach and selects appropriate functions in the system during the client interview to capture detailed information. The order of the functions shown in the user interface follows the logical flow of the client interview. Information collected through the use of earlier functions is automatically included in subsequent functions, as appropriate. For example, information collected through the use of the assessment function is automatically included in the treatment plan function and is used to generate the treatment plan.

All clinician's use the same, guided clinical interview processes, with the same screening and comprehensive assessment tools. After standard screening and assessment tools are used, clients are diagnosed using DSM-IV criteria, and a standardized treatment plan is developed. Treatment plans are directly tied to the assessment and are reviewed and revised on-line as clients receive treatment and make progress. It is possible to identify issues that emerge during the course of treatment, and address these in modifications to the treatment plan, which is informed and updated via the on-line client progress reports. Automated messages help the clinicians meet their process and documentation requirements. Client confidentiality and privacy is protected through a function that automates the process for sharing client information.

The functions of the system and a description of the functions are shown in the Appendix of this report. The system includes clinical features and administrative features. Key clinical system functions include:

- Client Profile, Screening Instrument
- Addiction Severity Index Assessment (ASI-Lite)
- Clinician's Assessment
- DSM-IV Diagnostic Instrument
- Treatment Plan, Treatment Plan Review
- Admission Report
- Progress Notes



- Didactic/Educational Group Progress Notes (These notes display the didactic and educational services provided for a large group. Each client’s Activity List is populated with the group note.)
- Discharge Report
- Discharge Summary
- Follow-up Reports
- Automated Messaging/Reminders
- Automated Release of Confidential Information/Revoke of Consent

Administrative functions include HIPAA Compliant Billing Transactions, Financial Eligibility, and Role Based Applications Security, Performance and Activity Measures Monthly Report, and Curriculum Outcome Measures.

Clinician tasks are tied in to the individual treatment plan and to the progress notes. A saved progress note for a billable service generates a claim for submission to DSHS for payment (residential services are the exception to this fee-for-service model – they are reimbursed for treatment days). This tying of specific counselor tasks to both the treatment plan goals and to reimbursement ensures that both the client and the counselor stay “on task” during therapeutic group sessions, individual sessions and didactic/educational sessions.

This also has the effect of creating a third “neutral party” in the client/counselor relationship, one that objectively monitors compliance with treatment plan goals and other elements of client progress. This can have the effect of reducing tension in the client/counselor relationship. It demands that counselors pay close attention to myriad details concerning the progress and activities of the many clients in their caseload, but it also helps counselors in this task by providing regular prompts and reminders. BHIPS offers a valuable client monitoring tool for counselors as DSHS provides reports on client progress in meeting the objectives and goals of their individual treatment plans.

Although a certain portion of counselor’s time and effort is still (and will by necessity always be) expended in the daily chores related to client record keeping, these chores are now tied directly to meeting State and Federal reporting requirements. Paper client charts must still be maintained at the facility level, but this process has been simplified and the overall reporting burden on the counselor and the provider has been reduced.

Improvement in practice must be driven by outcomes, but determining outcomes in a timeframe that provides meaningful feedback to clinicians demands a flexible and responsive data collection and reporting system. BHIPS has this functionality built into its system. It collects and matches admission and discharge data, but also collects data related to services provided while in treatment, and generates follow up reports. Counselors are prompted by BHIPS when tasks must be performed – for example, when it is time to place a follow-up call to a former client, or address some aspect of a current client’s treatment plan.



Value of BHIPS for Clients

As clinicians use BHIPS to assist them in their clinical practice, clients receiving treatment are the true beneficiaries. BHIPS is a client centered system that creates an electronic health record (EHR) for the individual client. It provides accurate and up-to-date demographic and treatment service information in one place. Providers are able to access complete, accurate, and timely electronic treatment information throughout the treatment process which enables them to provide the most appropriate treatment at various stages in the treatment, as needed. The release of confidential information/revoke of consent function allows client information to be easily shared as authorized and needed. Errors and service delays are reduced, delivery of timely and appropriate services is improved, and the quality and safety of client care is increased. The system supports the use of standard approaches including evidence-based practices (EBP) that should result in improved client outcomes. While clients are in treatment, client progress and change can be tracked using unique client identifiers (UCIs) and adjustments can be made using a CQI approach to improve client outcomes. A structured but flexible treatment approach allows for measurable client progress as well as the ability to consult with the client to modify the treatment plan, as needed.

Value of BHIPS for Managers

The information collected using BHIPS can be used to create tangible performance management strategies that administrators and clinicians can employ using a CQI framework. Using the data collected, performance management reports are produced and examined with an eye toward improving service delivery. DSHS uses these reports to evaluate and monitor service provider's contract performance to determine their ability to meet their goals. DSHS generates reports on provider contracted performance, and reports comparing their performance to other providers in the State and delivers them to providers so they can use the CQI model to improve their processes and client outcomes. DSHS develops reports on client progress and informs providers and clinicians so they can adjust their treatment plan and approach. Providers can also use the system to create reports for their own use on clinician performance and treatment outcomes. For example, it is simple to run reports on counselor activities to ensure that they are keeping up with the demands of their caseloads. Researchers are able to provide additional input to managers as they use data to examine trends in drug use and determine effective treatment practices.

Well-organized quantitative and qualitative data are easily accessible to authorized persons, allowing continuous quality improvement processes to be conducted from State offices. For example, site visits are no longer necessary for the conduct of peer reviews. The uniform procedure for generating unique client identifiers ensures tracking of clients as they move in and out of the treatment system, providing access to clinical information concerning current and previous treatment episodes and outcomes.

At the State level, BHIPS-related improvements led directly to reduction in the time counselors and providers spend managing paperwork, reduction in the time a client spends waiting for



treatment (from a matter of weeks to a matter of days), increases in client admissions, and improvement in client retention during the critical first few days of treatment.

Managers have realized improvements in quality and efficiency through implementation of BHIPS, and DSHS has successfully reduced paperwork and associated costs. The system automatically generates HIPAA Compliant billing and captures outcome data to meet federal and State reporting requirements. The DSHS Quality Management staff have been able to reduce on-site provider visits and associated travel costs by accessing BHIPS to perform their short and long term analysis of data. Providers have reduced their administrative workload and associated costs while improving their overall quality of provider clinical documentation.

Providers Using BHIPS

NASADAD visited a residential treatment facility and an independent outreach provider in Austin, Texas to better understand how providers use BHIPS. NASADAD met with Laurie DeLong, the Director of Phoenix House and Tina Hosaka, an independent Outreach, Screening, Assessment and Referral Provider (OSAR) at the Bluebonnet Trails Community Mental Health and Mental Retardation Center.

The Phoenix House is a multi-state program with over 100 facilities. The Phoenix House in Austin is a residential academy for teens (47 beds). It uses BHIPS and all its functions as it provides comprehensive drug and alcohol abuse treatment to adolescents while helping them catch up academically. During the initial client encounter, the clinician uses the system to guide the interview with the client and collect client information. As treatment progresses, the clinician uses the system to monitor the client and to update the client's records. Administrators use the system to monitor clinician performance and client progress. Phoenix House collects additional data not required by BHIPS but required by their own organization and enters that information into another parallel system at a later time. It also keeps additional paper forms and records in a separate notebook for each client. The provider has integrated BHIPS into its operations, by using BHIPS as its primary clinical tool, and to support clinical record keeping, reporting, and billing functions.

Every form the State requires is included in and generated by the BHIPS system, so the system can be relied upon to bring the provider into compliance with State regulations. Some forms are required by rule to be signed by the client and kept in a paper record. The reduction in paperwork is considerable (from 50% to 80%) and the transmittal and retrieval of client paperwork has been greatly simplified.

Standardized screening and assessment through BHIPS has allowed DSHS to establish OSAR Providers in the State's ten services regions, in most of the counties in each region. These providers are integrated with the substance abuse, mental health and mental retardation treatment systems. They are able to identify and refer Access To Recovery (ATR) clients seamlessly and transparently, collecting and reporting the necessary Government Performance and Results Act



(GPRA) data through the BHIPS system. Because they are independent, with the authority to determine the initial placement of clients based on accepted indicators of severity, patient placement in care matches patient need, contributing to improved outcomes. Providers and clinicians have access to these intake records, and are assured of appropriate referrals. Treatment programs and staff are not burdened with the task of screening, assessing and referring clients whose needs do not match the level of treatment they provide. Provider claims are less likely to be refused, and the system helps to ensure that the State is the payer of last resort.

The establishment of OSAR Providers resulted in higher severity clients being placed in residential treatment services, and then transferred to a lower intensity level of care as their condition improved rather than being discharged. A higher percent of clients requiring a lower intensity of care were also appropriately placed, and were more likely to complete treatment.

Providers and clinicians have ready access to technical assistance in a variety of forums, and confirmed that BHIPS administrators and trainers are truly accessible. The usual avenues of technical support are maintained, including a help desk and a discussion forum, but help also includes access to individuals who thoroughly understand both the technical aspects of BHIPS and the work of clinicians. Providers and clinicians do not hesitate to use this resource. A training center (for training the trainers), a training CD issued with the software, and ready access to a discussion forum, a help desk, and pager-based technical support facilitated the learning process.

Conclusion

BHIPS contributes to the professionalization and standardization of substance abuse treatment services. Within the DSHS treatment system, clinicians use BHIPS as a clinical tool to guide them through the treatment process as they conduct the initial interview, develop the treatment plan, and chart client progress. As the clinician selects appropriate functions, data is collected and stored in an electronic health record (EHR) for each client. The BHIPS system facilitates provider collection of clinical information while also ensuring adherence to business requirements. Access to timely and high quality data and analysis of data using a CQI framework leads to improved client outcomes and improved system outcomes such as reduced errors, reduced costs, and increased efficiency. The use of information technology adds significant value to the delivery of substance abuse treatment services and leads to improvement in clinical practice, data, and outcomes.



REPORT #2

BHIPS Project Synopsis

July 2006

John Keppler, M.D., and Charlesta K. Lee

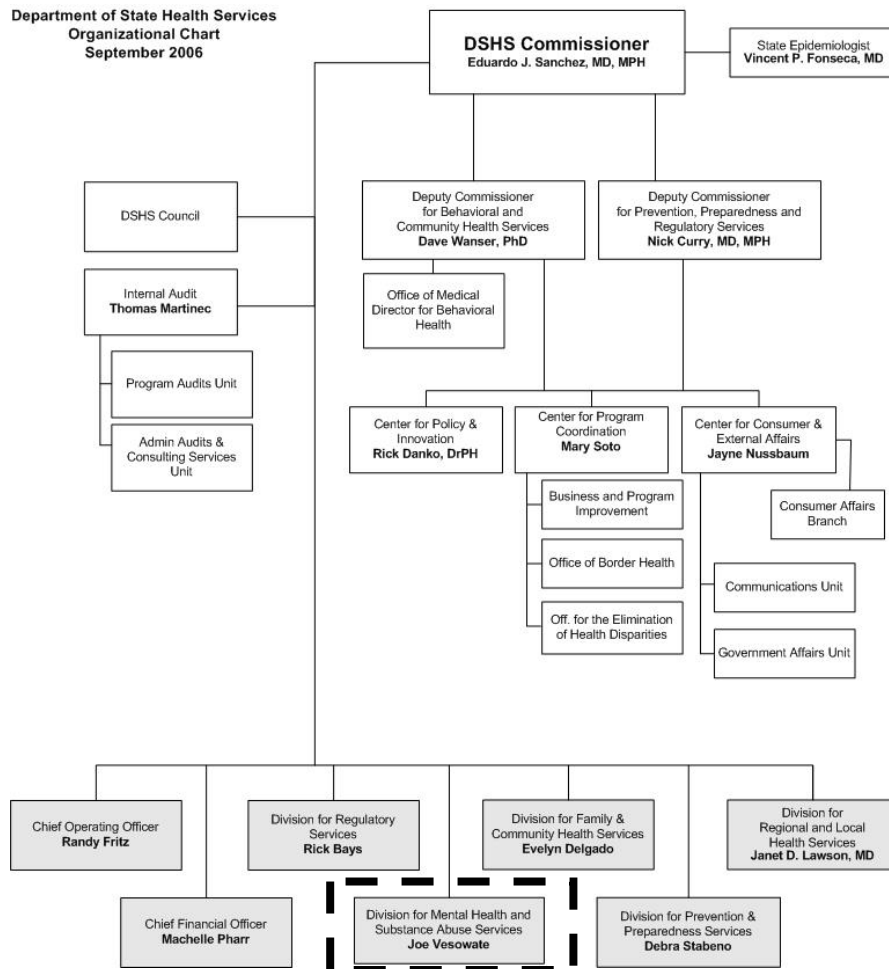
BHIPS Summary

BHIPS Introduction

The Behavioral Health Integrated Provider System (BHIPS) is a web-based computer system for DSHS funded providers that will support a case-management service delivery system. The Department of State Health Services (DSHS) developed the system that captures demographic, service, and clinical data about substance abuse patients. It tracks their utilization of services and progress as well as provides for State and Federal reporting requirements. In addition, it allows the sharing of valuable client data between providers and networks across the State.

Texas Department of State Health Services

There is a transformation of health and human service agencies under way in Texas that will create a better way to protect public health and support Texans in need. Twelve agencies have been blended to create four departments under the direction of the Health and Human Services Commission. The transformed enterprise will improve client services, use every public dollar efficiently, and focus on real results and accountability. The new organization will continuously strive to improve services and manage costs by listening to business partners and the people served and by putting innovation and new technology into practice. DSHS is one of the four new departments developed in the transformation. The following chart is a high level representation of how the department is organized:



DSHS is the single state authority for substance abuse and mental health services in Texas. The division on the organization chart indicated by the dotted line is where this function exists. The Division for Mental Health and Substance Abuse Services (MHSA) ensures a continuum of complementary mental health, alcohol and other substance abuse services in an efficient, effective and fiscally responsible manner. The responsibility for the improvement to access to these services across the state also lies with this division. Target populations are identified to ensure that resources are directed at the most vulnerable individuals and those whose problems have the greatest impact on the health and well-being of indigent families, communities and society.

Context

a) Objectives

Community-based, nonprofit substance abuse and mental services providers in Texas have had difficulty overcoming a number of growing challenges that impact the quality of care and limit the quantity and reliability of information about the services supported with state and federal funding. Critical issues include:



- Clients are increasingly complex and becoming more difficult to treat due to the growing likelihood of poly-drug use, mental and emotional disorders, and social problems with which they present.
- Many counselors, especially those with more limited educational preparation, have difficulty performing comprehensive client clinical assessments, planning and implementing treatment, and documenting and organizing client information to support and inform clinical and administrative processes.
- Continuity of care is often disrupted due to lack of communication and inefficient methods of exchanging information among providers.
- Client records are often incomplete and/or contain inadequate documentation. In 1999, a peer review was conducted where volunteers from funded service providers reviewed the client records of random patients from various service providers across the state at the provider organization. The findings in this review made it clear there was a need for standard clinical practices and client service documentation. Out of 63 charts evaluated, 42 had no evidence of a diagnosis nor was a diagnosis consistent with the client's intensity of care or length of stay. A myriad of assessment instruments were used, many of which were not designed to assess the client appropriately for determining severity or placement.
- Too much staff time is spent on duplicative data entry to comply with internal clinical and administrative documentation and external reporting requirements.
- Programs lack sufficient information and tools to evaluate their services and implement needed quality improvements.
- Most nonprofit organizations do not have the resources or expertise necessary to benefit from advances in computer technology and the Internet.
- Research and evaluation are often limited by the availability of data and difficulty accessing it. Conversely, new knowledge gained from research and evaluation is rarely reflected in program services.

The limited quantity and quality of data restricted DSHS' ability to accurately evaluate the effectiveness and efficiency of individual providers and the statewide service delivery system. A new approach was needed to improve client services, enhance provider productivity, and provide meaningful performance information in a timely manner.

The department chose automation to help improve the state-wide service delivery system. The objectives for the development of the automated application that came to be known as BHIPS were:

- To provide a cost-efficient management information system with a technical configuration and software functionality comparable to private sector software systems,
- Improve the consistency and quality of care provided by DSHS-funded programs,
- Improve accuracy and completeness of data,
- Improve information sharing and continuity of care among service providers,
- Decrease the administrative burden for providers and increase the productivity of their staff,
- Enable nonprofit programs to benefit from current technology and the Internet by providing them with access to a state-of-the art software system for a minimal cost,
- Ensure compliance with state and federal reporting requirements,
- Provide an extensive database and tools to ensure comprehensive program evaluation and facilitate research,
- Provide feedback to service providers in an easy to understand format,



- To enable providers access to their data for local analysis and reporting, and
- Streamline state oversight activities.

b) Project Organization

The system effort is managed by the following teams:

- BHIPS Management Team (BMT) - This team is comprised of DSHS personnel from different business areas of the agency. Its functions are to guide the project and act as a conduit to agency senior management. The project's executive sponsor leads this team. The team meets monthly to effectively guide the project. This team is ultimately accountable for the project success, for the resources assigned to the team and prioritizing work based on current need. Internal and external subject matter experts are invited to the meeting as needed.
- BHIPS Support Team - This team is comprised of programmatic, clinical, financial and technical assistance specialists as well as IT personnel. Its functions are to provide training to internal and external users, handle on-call support, and support application testing. It meets as necessary to effectively support these functions.
- BHIPS Development Team - This team is comprised of the Project Manager, Project Leader, Technical Writer and all Developers. The membership of the team is somewhat fluid so as to respond to the resource needs of the project. Its function is to analyze, design, develop, test and deploy the application and any enhancements or defect corrections needed. The Development Team meets as needed to determine and document progress. This information is emailed to BMT.

The application is hosted and maintained at DSHS' central facility. The fact that it is a web application ensures centralized control over maintenance and additions made to the system, resulting in one cost for updating one system as opposed to each provider paying to amend their individual systems. When alpha testing is complete, the application is passed to the Training and Technical Assistance team for beta testing. For major releases, a pilot is usually conducted using volunteers from the service provider community. Any usability issues are resolved and then the application is deployed state-wide.

Implementation

In the beginning, the system was only made available to DSHS funded providers and internal users. However, over time additional organization types have been given access to the system to enable the department to evaluate the effectiveness of more treatment provider types:

DSHS Funded Providers – DSHS does not perform traditional substance abuse services but contracts with providers to provide those services. Funded providers are required by contract to use the BHIPS.

DSHS Internal Staff:

- Quality Improvement Staff – The Quality Management auditing group uses the data in the BHIPS to evaluate client records for compliance purposes and to determine if a site visit is needed to help correct problems identified in the review. Prior to BHIPS, travel to sites was always necessary. BHIPS provides the ability to identify outliers where site visits are most needed.



- Contract Project Officers – evaluate service provider’s contract performance using reports generated from data entered into the BHIPS. If contracted providers are not making their goals in service provision and/or expenditures on a monthly and quarterly basis, the project officer will contact the provider and offer technical assistance to help them meet their goals. They also use this data to identify and track providers that are at high risk of not meeting their contractual agreements.
- Community Mental Health and Substance Abuse Section – use the data collected in BHIPS during the evaluation of applications for contract renewals and new contracts.

NorthSTAR – A behavioral health managed care system used in seven counties around the Dallas/Fort Worth area. Local providers enter assessment data into the system and request approval from the managed care organization using BHIPS, to admit a client to substance abuse and/or mental health treatment. The management organization accesses the data and either approves or disapproves the admission based on client need.

The NorthSTAR project engaged the Institute for Child Health Policy at the University of Florida¹ in conducting a study of BHIPS data submitted May 2002-March 2003. Another study was conducted on data from April 2003 through July of 2004. As a result of the comparison study the following recommendations were offered to help improve service delivery:

- Continue use of the BHIPS and provide additional training and support to complete the BHIPS documents
- Share results with service providers and identify opportunities based on the data
- Provide education to service providers on the correct way to code data entered in BHIPS
- Focus on how to encourage transfer to a step-down level of care so the patient will stay engaged in treatment as well as educate providers related to additional services available in step-down programs

Texas Department of Criminal Justice-Community Justice Assistance Division (TDCJ-CJAD) – uses the system for the management of Diversion Programs. These programs are intended to strengthen community supervision by reducing caseloads, utilizing progressive sanctions models, and providing more residential treatment and aftercare.

Drug Courts/Probation Offices – Upon being awarded the federal grant for Access to Recovery (ATR) Voucher grant, Drug Courts and Probation Departments have access to client data that is managed by Assessment Providers, Treatment Providers and Recovery Support providers. Each of these entities uses the system for monitoring the provision of services and client progress for drug court and probation clients that have been given the opportunity to attend treatment in lieu of incarceration.

a) *Scope*

The Behavioral Health Integrated Provider System (BHIPS) is a nationally recognized, comprehensive, web-based clinical information system for substance abuse and mental health service providers that supports services delivered independently or through provider networks. It includes a guided clinical interview and other tools to help providers implement best clinical practices as it tracks client service utilization and progress, automates billing, and provides extensive reporting and analysis capabilities as a by-product of the clinical processes. The application database is part of the integrated enterprise database making financial and contract data directly available to the system.

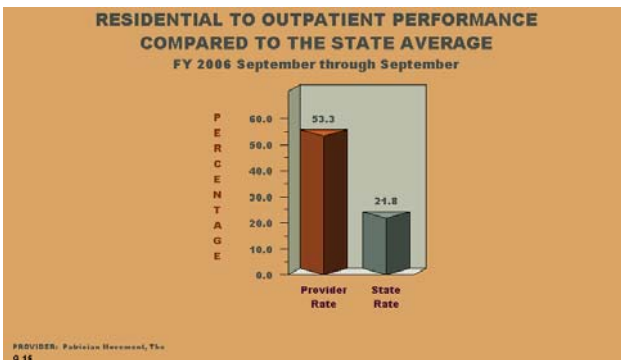
¹ Clinical Outcomes of Chemical Dependency Treatment QI focus study for NorthSTAR



The BHIPS provides a complete set of clinical tools to manage and coordinate client care, guiding the counselor through the treatment process using structured interviews and data collection instruments. The system was designed for clinician's and the process flow matches that of their every-day duties. The BHIPS is intended to be used interactively with the client sitting with the clinician as data gets entered into the system. This interaction with the system tends to foster the client's ownership of the data therefore making it more accurate. Provider managers report their clinician's are better clinicians as a result of using the BHIPS because of its attention to detail and completeness.

BHIPS has a separate component for prevention programs to track their aggregate performance and activity measures and outcomes. Additional functionality is being developed to provide prevention programs with a fully automated service record where data is collected at the event level, eliminating the need to calculate services provided and persons served at the end of a reporting period.

BHIPS is an on-line, real-time, web-based application. All that is needed to use the system is a PC with an Internet connection and security access to the system. Funded providers, state-wide, are required to enter and access data through the system. DSHS provides reports to providers that indicate client progress while in treatment so that decisions about the treatment approach may be made when necessary. DSHS also provides on-demand reports to providers comparing their outcomes to contracted performance measures and comparing their outcomes to the rest of the State. The bar graph below shows how The Patrician Movement in San Antonio compares to the state average in successfully transitioning patients from residential to outpatient services. The table graph indicates the number of patients served to-date compared to the goals set in the contract. These reports help the providers identify performance shortcomings so they can improve their processes.



Austin Recovery, Inc.
Number Served Compared to Award Goal
FY 2006 September Through February

Award	Region	Description	Total Served	Goal	Pct of Goal
070810063KTO	07	Outpatient Individual/Specialized Female	0	194	0.0
070810063KTO	07	Outpatient Individual	0	137	0.0
070782063TRA	07	Intensive Residential	228	352	64.8
070782063TRA	07	Intensive Residential/Specialized Female	27	73	37.0
070782063TRA	07	Intensive Residential/Women and Children	46	73	63.0
070782063TRA	07	Outpatient Group/Specialized Female	65	233	27.9
070782063TRA	07	Outpatient Individual/Specialized Female	54	233	23.2
070782063TRA	07	Outpatient Group	231	382	60.5
070782063TRA	07	Outpatient Individual	201	382	52.6



BHIPS was developed using state-of-the-art technology. The application is currently developed using Active Server Pages (ASP) and Microsoft Visual Basic and has been converted to a standard framework using Microsoft .NET and Web Services. This rewrite will enable other functionality built on the same framework to be shared across business entities or states. Sybase is used as the database and development standards are strictly enforced. However, the framework is generic and can be used with any other database, making the BHIPS extremely portable for use by other organizations.

b) *Integration Level* – DSHS is a part of a consolidation effort to combine 12 health and human services agencies into four new agencies. Projects have begun to integrate BHIPS with existing mental health and other health services systems. One of these projects is to provide a common front-end so that it is seamless where the data comes from regardless of whether the user is substance abuse or mental health related.

The integration project will combine the substance abuse and mental health data into a consolidated warehouse. This will help track clients previously in both systems and identify their over all behavioral health treatment needs.

c) *Privacy Protection* – BHIPS uses Versign’s Secure Socket Layers (SSL) encryption tool to secure data as it is transmitted across the Internet. SSL is the industry standard used by banks, credit card companies and other financial institutions to protect electronic data. Each user has his/her own user ID and a password that is encrypted in the database.

Access to data is controlled by role assignment. For example, if an intake clerk enters demographic information about a patient, they are assigned the Intake Clerk role. This role has very limited access to the various screens and therefore the clerk is unable to see clinical information about clients. All of these features help prevent fraud and misuse of the system.

Individual client identifying information is shared across provider organizations using BHIPS; however, this is strictly controlled. A consent form signed by the client must be on file for this information to be released electronically. And then, only records the client authorizes can be released.

De-identified data is created from the on-line information system and stored in the data warehouse. Therefore, client-identifying information is not generally available to DSHS staff.

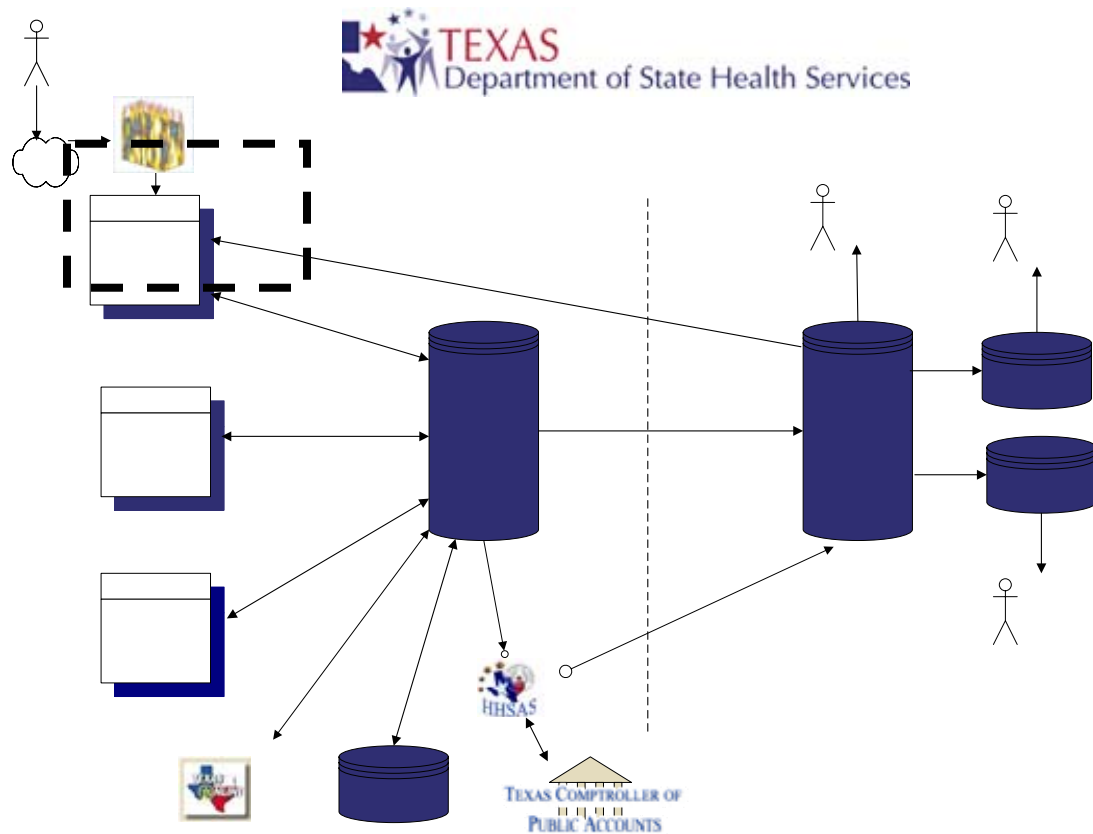
BHIPS is compliant with all current rules and regulations for the protection of client identifying information including Federal Register 42 CFR, Part 2 and HIPAA.

d) *System Implementation* – The system has been developed and delivered in logical blocks of functionality. The core functionality of the system was piloted for a year. During this time, pilot providers used the system and provided feedback on the usability and functionality of the system. Pilot providers were surveyed 60 days into the pilot and there was an 89% overall approval rating. As a result of provider feed-back, several processes were slightly re-designed to improve usability and performance before rolling the system out June 2001.

DSHS surveyed providers about technical readiness prior to roll-out. Each provider was classified as either 1=Ready, 2=Borderline or 3=Not Ready. Providers that were ready were trained and converted first. Borderline providers were given a timeframe to become ready and were trained and converted next. Those not ready were given a later timeline and were trained and converted last. Providers that were financially unable to comply by the technical requirements for using the BHIPS were given a one-time payment to purchase necessary equipment to become ready. This roll-out took approximately one year.

Internal training and technical support staff was trained by the clinical and IT staff that developed the system. They trained the providers using the train-the-trainer approach. Two to four staff members from each organization were trained either locally across the State or at DSHS. These staff members went back to their organizations and trained their own staff. On-going training at DSHS is still provided today to accommodate provider staff turn-over and refresher courses. The system has extensive and comprehensive on-line help and on-line training manuals that are kept current on a daily basis. All new functionality also has multi-media presentations associated with it. DSHS provides a HelpLine that is manned during regular office hours.

e) *Current State* – The system has been in production for 5+ years and is currently required to be used by every DSHS-funded provider in the State of Texas. This includes treatment providers who enter client treatment data into the system, billing staff that submit HIPAA compliant claims to DSHS for payment, prevention and intervention service providers who enter reports of numbers served and performance outcomes, and administrative staff that are supervisory in nature or are security administrators for their organization. The BHIPS is a component of a much larger system. It sits on top of a fully integrated enterprise-wide database that not only contains BHIPS data but also includes all other departmental related data such as contracts, budget, billing, etc. See the figure below:



The BHIPS has recently been re-written in Microsoft .NET using a framework that allows the application to be database independent. It also allows the sharing of functionality across states reducing the effort on all using the common framework.



Due to the nature of the confidential data, the public is limited to accessing provider demographic information such as name, location, services provided and available capacity. Any additional access is controlled by the security measures described above. There are graphs available to the public that show overall State performance for the last two fiscal years.

As stated above, providers have graphs that indicate their performance levels to that of the State in general. There are also provider reports that indicate contractual performance ratings to-date.

Value

a) *Success in Meeting Objectives:*

Standardized Clinical Documentation – In 1999, prior to the implementation of the BHIPS, A peer review was conducted. Clinician’s from various organizations traveled to peer organizations and used a standard questionnaire in the evaluation of a client’s paper record. Of 63 random charts reviewed, 42 charts contained no evidence of a diagnosis that was consistent with other documentation in the file. There was a myriad of “assessment” tools, many of which were not appropriate for diagnosis and proper placement. These instruments ranged from true clinical assessments to a simple demographic sheet.

The BHIPS is a guided clinical interview. Standard screening and assessment tools are now used. These tools lead the clinician and client through the evaluation process and insure that no areas are neglected. All clients are now diagnosed using DSM-IV criteria and every admission is justified. Standardized treatment plan problems are automatically generated from the assessment based on how the client answers specific questions. The generated treatment plan ensures all problems are identified and addressed in treatment. Standard treatment plan reviews are performed and treatment plans are revised, on-line, based on client progress as indicated by clinician reports. In the 2005 peer review activity, **all** client records examined in BHIPS had a comprehensive assessment and a diagnosis that was consistent with the documentation in the file. This evaluation was conducted at DSHS without evaluators having to travel to peer organizations and filtering through unorganized, paper client records.

Administration Reduction – HIPAA compliant billings are now tied to services provided and to one or more objectives in the treatment plan. DSHS is now able to determine what it is paying for and if it is appropriate for the client. The department can calculate the cost of treatment and billing and Federal and State reporting requirements are now a by-product of a clinician’s daily work, eliminating the requirement to report this data separately.

Providers no longer have to search their facility for a paper file. Everything is available on-line, at the click of a mouse. The reduction in paper documents ranges from 50% to 80% and providers no longer have to copy documents and pay for mailing; the documents are available on-line in an organized fashion. The automated consent and referral process fosters providers working together to insure a patient receives a full continuum of care. Automated messages and reminders help clinician’s manage their caseload and organize their activities.

Provider Quality Improvement – By accessing the system from DSHS, Quality Management (QM) staff have reduced travel by 60%. The availability of the data in the BHIPS significantly reduces travel costs by performing desk reviews and staff are able to perform more reviews during the course of the year.

Use of the BHIPS by providers has improved the overall quality of clinical documentation which results in fewer citations and corrective actions from QM. The BHIPS data enables not only short-term but also long-term analysis of program quality.

The BHIPS has been instrumental in helping QM help providers. An example of this scenario is the federally funded, CSAT, STAR project at the Patrician Movement (PM) in San Antonio, Texas. QM staff



has made the BHIPS data available to the provider monthly. By using this data, the STAR Project measures 18 factors related to access and retention and then adjusts their practices for improvement. Among the program successes are:

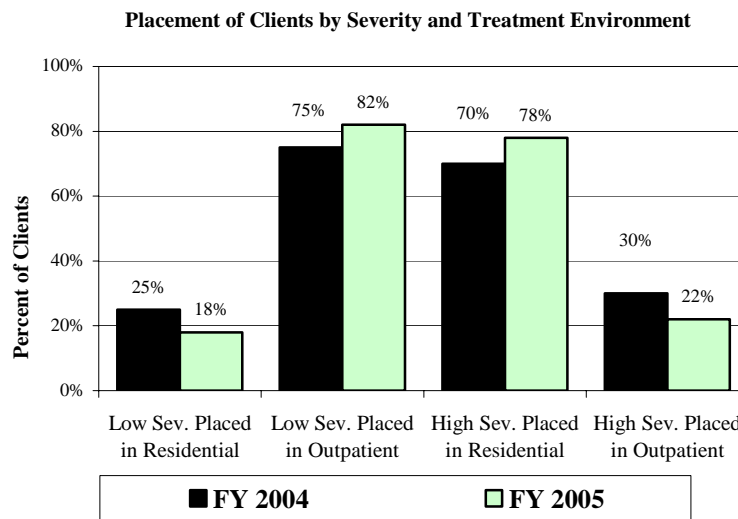
- Reduced the time a client is on the wait list from 60 days to seven days,
- Increased admissions by 20 percent, and
- Twenty percent more of their patients stay past the 4th day, (the most crucial time for dropout).

Without the BHIPS data, these improvements would not have been possible.

Healthcare Improvements – By implementing two changes in BHIPS in how clients are placed in various levels of substance abuse treatment, Martin Arocena², Ph.D. Data Analysis & Information Branch at DSHS reports:

- Funding of *independent* assessment providers (OSARs) with authority to determine the initial placement of clients in treatment.
- Determination of client’s severity level based on the evaluation of selected variables included in the Addiction Severity Index.

As the figure below indicates a greater percent of low severity clients were placed in outpatient services across study years. Also, a greater percentage of high severity clients were placed in residential services.

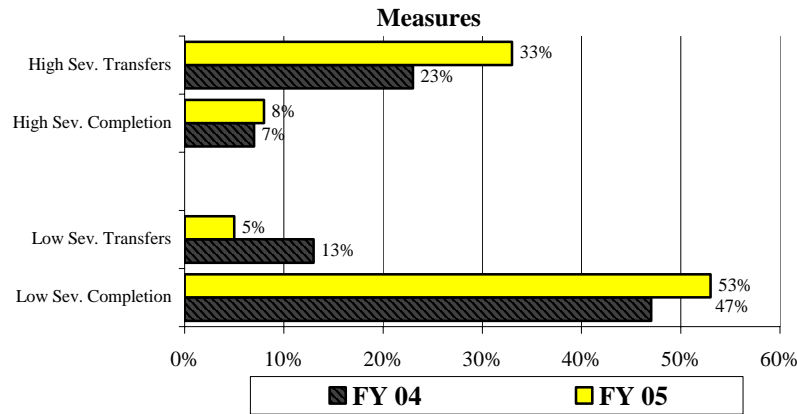


As a result of proper placement, the following figure shows a higher percentage of high severity clients in residential service transferred to a lower intensity level of care as opposed to leaving treatment after residential services. Also, a higher percentage of low severity clients placed in outpatient services completed the continuum of care:

² Martin Arocena, Ph.D., Changes in Placement Criteria Yield Positive Results in Substance Abuse Treatment



Placement of Substance Abuse Clients and Outcome



b) *Costs and Benefits Offsetting Costs* – The development of the BHIPS was primarily funded with federal block grant money (approximately 85%), which was supplemented with state general revenue (approximately 15%).

Development Costs (9/1/98 through 3/1/02)

Contract Services	\$1,664,748
Information technology Staff Salaries (2.18 FTEs)	\$154,659
Information technology Training	\$3,500
Computer Hardware	\$38,146
Software	\$6,711
Supplies	\$3,524
Other	\$2,461
Total	\$1,873,749

External contractors were hired to develop BHIPS, but many of the DSHS’ internal information technology staff also played a role in BHIPS development and/or support—the equivalent of 2.18 full-time staff. The agency already had a robust information technology infrastructure to support other applications, including the enterprise database, servers, data warehouse and an Internet access system. Some hardware and software components were required to supplement the existing architecture.

The availability of precise cost data associated with the development of BHIPS can help other states project development costs for similar systems, which is often the greatest challenge in planning automation projects

Implementation Costs

Staff salaries for training and technical assistance (2 FTEs)	\$80,000
Travel	\$7,500
Computer hardware for providers	\$154,000
Pagers and toll-free helpline	360
Total	\$241,860



DSHS surveyed contractors on their technology readiness. Although most had sufficient computer infrastructure, nine providers needed additions or upgrades to accommodate BHIPS. The agency allocated additional funds to enable these organizations to acquire the necessary hardware.

Key performance measures were derived at the beginning of the project by interviewing management staff at provider organizations to determine their critical business issues. Upon determining where the new system could be of the most help, a survey was conducted to determine current costs for performing tasks. In February 2001, the pilot providers who had been using the system for over a year, were surveyed to determine actual savings. For example, in the initial survey, it took an average of 1050 hours per week for a large contractor to enter the required data into the reporting system. In the new survey the average from all contractors indicated BHIPS saves them 50% of their time completing paperwork. The cost savings is then calculated by multiplying the originally estimated amount by the percentage saved.

The following chart indicates the overall projected and actual savings achieved by implementation of the system:

Annualized Cost Savings

		Number of Agencies	Annual Benefit per Agency	Total Annual Benefit
Original Estimated Cost Savings	Large Contractors	1*	\$276,329	\$276,329
	Small Contractors	4*	\$55,616	\$222,464
	Total			\$ 498,793
Current Estimated Cost Savings	Large Contractors	1**	\$645,766	\$645,766
	Small Contractors	4**	\$97,506	\$390,024
	Total			\$1,035,790
	Net Variance			\$536,997

* original estimates relative to the number of survey responses for projected savings.

** current estimates relative to the number of survey responses for actual savings.

Annual Operational Costs:

Staff salaries for training (1.5 FTEs)	\$69,600
Staff salaries for functional user support (1.2 FTE)	\$55,680
Staff salaries for technological support & maintenance (1.6 FTEs)	\$97,200
Contract salaries for technological support, maintenance (2.2 FTEs)	\$292,424
Pagers and toll-free helpline	\$450
Total	\$515,345



DSHS has assigned 2.7 staff persons to provide training and functional support for BHIPS on a full-time basis. Other members of the agency's training and technical assistance department provide back-up and assist with training. Two-day training sessions are offered approximately twice a month to accommodate new contractors and staff turnover at existing contractors. The development of multi-media, online, teleconference presentations are a regular part of the training effort. Technological support requires the equivalent of 3.8 full time staff.

The system went into full production in June 2001. As indicated, by the chart above, the system paid for itself in a very short amount of time. Those cost savings continue to be realized on an annual basis.

For more information about BHIPS current functionality, please refer to the Appendix.



REPORT #3

Technical Assistance Report for the
**PERFORMANCE MANAGEMENT TECHNICAL
ASSISTANCE COORDINATING CENTER**

**Supplemental Data Readiness Report to the
National Association of State Alcohol and Drug Abuse Directors
Behavioral Health Integrated Provider System Report**

Texas Department of State Health Services

MARCH 2006

Prepared under

Center for Substance Abuse Treatment
Contract No. 277-00-6400, Task Order No. 277-00-6403

Submitted by

The Performance Management
Technical Assistance Coordinating Center



U.S. Department of Health and Human Services
Substance Abuse and Mental Health Services Administration
Center for Substance Abuse Treatment
www.samhsa.gov



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I Observations

Dennis Nalty, Ph.D.

A. Current Treatment Data and Reporting Infrastructure

1. Data Submission and Data Timeliness —BHIPS is a web-based application that supports real-time data entry and submission by the provider network. BHIPS supports approximately 2,000 users across 212 service provider entities and typically supports approximately 600 connected sessions with an average of 25-30 concurrent users throughout a typical work day. BHIPS staff did not report any significant issues with data submission timeliness. BHIPS staff employ various practices to prevent degradation of input response time (such as downloading changed records to the data warehouse only during late evening hours and posting provider downloadable data to the data warehouse to preserve data input bandwidth during business hours). BHIPS uses an account security system with role-based access, strong passwords, and 128-bit encryption through Secure Socket Layer (SSL) to ensure the security and privacy of client data during transmission through the Internet.

2. Unique Client Identifiers — At the State database level, BHIPS generates a statewide unique client identifier, similar to a master patient index. For each prospective client, providers enter five client identifiers via the client profile screen (last four characters of SSN ["9999" if not available or refused], date of birth, gender, first three characters of mother's first name, and first five characters of client's city of birth [text, not the Census Federal Information Processing Standards FIPS code]) into BHIPS. BHIPS compares the input client identifiers against the client identifiers for all existing clients currently in the BHIPS database state-wide. If a match is found on four or more of the five input identifiers, the client's existing master patient index (statewide unique ID) is retrieved and is attached to the profile record and to all subsequent records in the BHIPS database for the client during the current service episode. If the client identifiers do not match against the existing client database on at least four of the identifiers, the client is assumed to be a new client with no prior service episodes (known to BHIPS) statewide and a new sequential incremental ("one-up") master statewide client ID is generated and attached to all client records during the current service episode. Human review at the State level is occasionally employed to resolve uncertain client identification cases. The State reports that the "four or more of five" protocol (in conjunction with human review) achieves sensitivity/specificity rates of approximately 89 percent. Providers also collect social security number (SSN) and report SSN to BHIPS. However, SSN reporting is optional and SSN is not used as a primary identifier. Clients without an SSN (or who chose not to report such) are coded with a 999-99-9999 string. The State estimates that approximately 95 percent of clients provide an apparently non-bogus SSN. At the provider level, clients are not identified by the BHIPS statewide client identifier, but rather clients are identified at the provider level by a 10-character provider-specific client ID, consisting of the last four characters of the client's SSN ("9999" if not available or refused) plus six additional characters that each provider can assign according to provider-specific protocols. Within each provider agency, staff can look up any pre-existing provider-specific ID for clients re-entering the specific provider agency and can select any pre-existing client ID from a list of



possible candidates (so that any pre-existing provider-specific client ID is used for reentering clients within a particular provider agency).

3. Client Definitions, Unique Client Episodes of Care — In FFY 2005, DSHS-funded treatment programs provided services to 53,044 individuals (Texas Federal Block Grant application, FFY 2006). In CY 2004, Texas reported 37,052 admissions to the Treatment Episode Data Set (TEDS). Texas reports to TEDS only those admissions for federal and State-funded clients admitted for services in facilities that received federal or State funding. Texas does report change of service within a provider within an episode of care as a transfer to TEDS, and reports any change of provider or facility within an episode of care as a transfer admission to TEDS. In CY 2003, Texas reported 35,682 “initial” admissions to TEDS, plus 12,008 transfer admissions to TEDS (SAMHSA Office of Applied Studies [OAS] TEDS report, 2003).

4. Client Database Structure: Client Forms and Records - the name of BHIPS client forms and records are identified are listed below:

Client Profile
Program Case
Screening
General Assessment
Medical Assessment
Education / Employment Assessment
Substance Use Assessment
Legal Assessment
Family / Social Assessment
Psychiatric Assessment
Diagnostic Impression
Clinician’s Assessment
Recommendations from Assessment
Adult Admission
Youth Admission
Adult Discharge
Youth Discharge
Discharge Summary
Discharge Plan Detail
Discharge Objective Detail
Discharge Strategy Detail
Outpatient Progress / Co-Occurring Psychiatric and Substance Use Disorders Progress
Residential Client Progress Report
Progress Note
Follow-Up - Adult
Follow-Up - Detox
Follow-Up – Youth
Financial Eligibility



Case Management Client Interview
Treatment Plan Problem Detail
Treatment Plan Review
Treatment Plan Objective Detail
Treatment Plan Strategy Detail
Service Plan
Clinician's Notes
Didactic / Educational Group Note
Methadone Services
Residential Services
HIV Early Intervention Services – HEI – Measures and Narrative
Referral
Referral Follow-Up
Consent
Revoke Consent
Access to Recovery – ATR – Voucher
Select ATR Provider
ATR Voucher Services
ATR Client Interview
Prevention Monthly Measures
Curriculum Outcome Quarterly Reporting

5. *Client Database Structure: Admission, Discharge*— BHIPS captures fully-populated admission and discharge assessment records, containing all of the TEDS minimum data set elements, almost all of the TEDS supplemental data set elements, and approximations or cross-walkable or exact renditions of all of the currently defined admission-discharge NOMS data elements.

6. *Client Database Structure: Service Records* — BHIPS captures client-specific, service-specific, date-specific service records and progress notes that also serve to generate the billing record (including the generation of HIPAA 837 claims records with HCPCS codes and modifiers etc). Texas reimburses on a fee-for-service basis (with not-to-exceed caps) and all billing is based on specific services delivered to specific clients.

7. *Client Database Structure: Record Linkages* — BHIPS appears to be highly effective in clustering and linking admission records, discharge records, service records, follow-up records, and other related records for each client episode of care. All records contain client number, client ID, and client name. Client identifiers and related elements from the profile (intake) record propagate to all other subsequent records for a given client service episode. In addition, admission and discharge records include an admission number and discharge number for each client service episode. Discharge records also contain the date of the corresponding admission record. The admission number for each client episode is also replicated to all service records and to the discharge record for the episode. The TEDS contractor (Synectics) recently reviewed various State data linking capabilities and reported that 100% of the CY 2004 discharge records



submitted by Texas to TEDS were linkable to a corresponding previously submitted admission record. Similarly, Synectics calculated (using a rough approximation) that Texas TEDS discharges for CY 2004 were 93% of the Texas TEDS admissions for CY 2004, suggesting relatively few cases of “missing discharges”.

In January 2006, Texas was awarded a SOMMS (State Outcomes Measurement and Management Systems) contract from CSAT to help support data collection efforts for the National Outcomes Measures (NOMs). Under SOMMS, each State is expected to submit admission records in any given quarter equal to 90 percent or more of the admission record volume for the corresponding quarter in the previous 12 month period. In addition, SOMMS expects that the number of matched discharges submitted each quarter must be 90 percent or more of the admission record volume for the current quarter. Finally SOMMS expects that 90 percent of the discharge records must match (link to) a corresponding admission record. Based on the State’s current performance, Texas should easily meet these data matching and data linking standards.

8. Data Completeness and Data Reliability — BHIPS identifies all of the required fields on each form and enforces data element response rules for each of the required fields. BHIPS also contains a large array of real-time valid code checks and consistency checks and warnings on almost every data element. The State office also runs periodic edit checks to identify data quality outliers and addresses such issues with follow-up (including ongoing training and site visits where necessary). The federal TEDS report for Texas for CY 2003 admissions confirms an item response rate of 99% or better for most of the minimum dataset elements submitted by the State that year. For the optional supplemental admission data set elements that Texas submitted for CY 2003, the item response rates were generally 97% or better.

The SOMMS contract requires that recipients ensure that all data elements currently reported in TEDS have no more than five percent unknown, missing, or invalid codes (and that the unknown, missing, or invalid coding on the new NOMs data elements cannot exceed 20 percent during the first year of reporting, dropping to no more than five percent in the years thereafter). Based on the State’s current performance, Texas should easily meet these quality and completeness standards.

B. Client Process Reports

The State office generates routine client process reports, some of which are posted at the aggregate statewide level on the Texas Substance Abuse website. These client reports are based on the BHIPS data analyzed using SAS, SQL queries, and other programs. Many of the on-line reports have graphic displays with drill-down capabilities. Typical process reports include client characteristics, services provided, etc. Many of these reports are used for the annual Federal Block Grant application and for annual reports to the Governor and State Legislature. State office staff can generate ad-hoc client reports during the year, as needed. The State office also can generate aggregate provider-level process reports upon request (within the parameters of 42



CFR Part 2, HIPAA, and the Texas Open Records Act). BHIPS does not provide on-line ad-hoc reporting capabilities for the providers. However, BHIPS does allow providers to download their own data (via the BHIPS data warehouse, updated nightly) to run their own reports.

Examples of Texas client process reports include the following:

Treatment Demographics – Client Characteristics -gender, ethnicity, age, primary problem, etc
Admissions for Priority Populations (pregnant, injectors, parents with children in foster care, etc)
Co-Occurring Psychiatric and Substance Use Disorders Admissions
Active Clients by Program Type and Service
Program Expenditures To-Date - as a percentage of total funding by program type.

C. Client Progress and Outcomes Reports

1. Assessment of Client Progress from Admission to Discharge — The State office staff generates periodic client progress reports. Such reports assess client progress as measured by change in frequency of use or abstinence from admission to discharge, change in employment status, and change in living arrangements, and change in arrests. The State did not report client progress data for the optional T-forms in the Federal Fiscal Year (FFY) 2006 Substance Abuse Prevention and Treatment (SAPT) Block Grant application. However, the State has generated client change reports on all of the above measures using SFY 2005 linked admission and discharge records and did provide client progress data to the National Association of State Alcohol/Drug Abuse Directors (NASADAD) during the FFY 2006 Substance Abuse and Mental Health Services Administration (SAMHSA) budget hearing process.

2. Client Outcome Assessment Through Post-Discharge Direct Client Contact – The State collects client data post-discharge through follow-up report forms (adult follow-up, youth follow-up, and detox follow-up). The follow-up form replicates many of the data elements collected at admission and at discharge. Follow-up information is collected at various intervals after the client has been discharged from services. The frequency and timing of post-discharge follow-ups is determined by each provider. The State monitors the percentage of clients receiving one or more post-discharge follow-ups and monitors client abstinence (and other outcomes) as reported during the post-discharge contacts.

3. Client Outcome Assessment via Database Linkages — At present, Texas does not engage in client outcome studies using database linkages to other State datasets. The Texas BHIPS system does, however, collect sufficient identifiers that future outcome studies linking, for example, alcohol-drug client data to arrest data pre- and post- services are feasible, should the State decide to do so. BHIPS also collects mental health client IDs (such as the NorthSTAR client number) for clients enrolled in blended funding (Medicaid, mental health and substance abuse) and co-occurring disorder programs. Texas has generated various reports on such managed care including co-occurring client populations, analysis of emergency department use and service re-entry.



D. Performance Reports

The State office generates routine performance reports, some of which are posted at the aggregate statewide level on the Texas Substance Abuse website. Many of the on-line reports are displayed within BHIPS at the provider level as monthly trends with State target performance thresholds and have graphic displays. Examples of Texas performance reports include the following:

- Client Discharges Against Medical Advice (AMA)
- Client Discharges Due to Program Decision - clients discharged for violation of program rules
- Administrative Discharges - as a percent of total discharges
- Length of Stay by Service Type
- Length of Stay Within Guidelines by Service Type
- Detox Length of Stay Exceeding Guidelines
- Residential Admissions with Treatment Plans Completed in Less than Six Days
- Treatment Completion, Follow-Up Contact, and Abstinence Post-Discharge - for Non-Detox Clients by Service
- Referral to Subsequent Level of Care Following Detox

E. Provider Assessment

The Texas State office provided examples where the performance reports are used to monitor provider effectiveness. For example, administrative discharges (target 0%) are used at contract renewal as a scalable performance weight. At the provider level, clinicians are presented with daily client inactivity reports, consisting of lists of non-discharged clients with no service activity or billing in 30 days, 50 days etc. in an effort to maintain client engagement and reduce administrative discharges. Similarly, a performance standard for client transfer to subsequent care following detox (currently 70% successful transfer statewide) is an element of the provider detox contract.

F. Financial Reporting

The State generates expenditure and budget reports periodically throughout the year and for State government annual reports and for the Federal Block Grant application. In addition, the State generates per-person costs estimates by level of care for Form 7A of the Federal Block Grant application. These cost estimates include the mean, median, and standard deviation of costs per person by level of care. The State also reports in the Federal Block Grant application its fee-for-service unit rates per hour/day for various service types. The State also has posted on its website detailed guidance to its providers on cost allocation protocols (direct costs, indirect costs, allowable and non-allowable costs, etc).



G. Treatment National Outcome Measures (NOMs)

Texas has been actively engaged in the development of the NOMs (and the earlier Performance Partnership Grant process) for many years. The current version of BHIPS contains data elements similar to many of the NOMs variables (at least those that have been relatively finalized). Selected data elements in BHIPS will need some changes to the item definitions or response options, but in general, BHIPS has the capability to capture, at admission and at discharge, linkable, NOMs-compliant (or NOMs-cross-walkable) client data.

1. Abstinence from Alcohol and Drug Use Domain —BHIPS captures (on both the discharge and admission form as well as the screening record) the number of days of substance use (in the prior thirty days) for whichever substances are identified as the client's primary, secondary, or tertiary problem. BHIPS also captures (through the substance use assessment form and through the client progress record for outpatient and co-occurring services) days using alcohol and various listed drugs (in the prior 30 days) for all clients, regardless whether alcohol or any specific drug was identified as the client's primary, secondary, or tertiary problem. BHIPS also captures via the admission form the number of days in the prior 30 days in which the client was abstinent from all substances. BHIPS can also calculate (via the substance use assessment form) days abstinent in the prior 30 days for alcohol and various listed drugs. Texas did not report change in alcohol abstinence or change in drug abstinence in optional forms T4 or T5 in the FFY 2006 Federal Block Grant application. Texas, however, has provided a separate analysis for 2005 indicating an increase in alcohol abstinence of 45 percentage points from admission to discharge and an increase in drug abstinence of 46 percentage points.

2. Employment Status Domain — BHIPS captures employment status on the admission form and discharge form. Detailed not-in-labor force status is also captured on the admission record. Employment status (including some detail on not-in-labor force status) is also documented on the education / employment assessment form. Texas did not report change in employment in optional form T1 in the FFY 2006 Federal Block Grant application. Texas, however, has provided a separate analysis for 2005 indicating a 25 percentage point increase in percent of clients employed from admission to discharge.

3. Crime and Criminal Justice Domain — BHIPS captures a legal status data element (on probation, awaiting trial, etc) on the admission record and discharge record. BHIPS captures (on the admission form) the number of times the client has been arrested in the prior 12 months on specific AOD charges (DWI, public intoxication, other AOD charges or AOD-related charges). The legal assessment form captures the number of lifetime arrests on various listed charges. The legal assessment form also captures the number of days in the prior 30 days in which the client was detained or incarcerated. The current version of BHIPS does not, however, appear to capture arrests in the prior 30 days at admission and at discharge as described in the NOMs standard. Texas did not report change in arrest status in optional form T3 in the FFY 2006 Federal Block Grant application. Texas, however, has provided a separate analysis for 2005 indicating a 17 percentage point reduction in percent of clients arrested from admission to discharge (the exact definition and analysis time windows for this calculation were not reviewed during the visit).



4. *Living Conditions and Family Stability Domain* — BHIPS captures living arrangements on the admission record and on the discharge record. In addition, BHIPS captures the client's usual living arrangements in the prior three years on the family / social assessment form. Texas did not report change in homelessness status in optional form T2 in the FFY 2006 Federal Block Grant application. Texas, however, has provided a separate analysis for 2005 indicating a 5 percentage point reduction in percent of clients who are homeless from admission to discharge.

5. *Social and Familial Support of Recovery: Social Connectedness Domain* — The NOMs standard for social and familial support of recovery has not been finalized as of the date of this report. However, BHIPS currently collects various data elements that may be used in the final standard for this domain. Specifically, BHIPS captures on both the admission record and discharge record the number of days in the prior 30 days that the client attended chemical dependency support group meetings. A similar data element is captured on the substance use assessment. The number of AA/NA meetings (as well as the number of educational meetings) is also captured on the progress record for outpatient and co-occurring services and on the progress record for residential services. Family participation in services since last report is captured via a checkbox on both progress records. Other related data elements concerning client satisfaction with current living arrangements, living with others who have substance use problems, friends who use / abuse substances, and child protection and reunification issues are captured in various sections of the admission record, discharge record, and family / social assessment record. BHIPS captures (in the family / social assessment) the number of days in the prior 30 days in which the client had serious conflict with family and friends, but BHIPS does not appear to capture on any record the number of days in which the client had positive interactions with family and friends who are supportive of the client's recovery. Texas did not report change in participation in social support of recovery activities in optional form T7 in the FFY 2006 Federal Block Grant application.

6. *Access to Services and Service Capacity Domain: Persons Served, Unduplicated Client Counts* — The State has the capacity and ability to generate statewide unique client counts, overall and by levels of care, services, programs, and demographics. The statewide unique identification protocol used in BHIPS should provide reasonably accurate unique client counts.

7. *Access to Services and Service Capacity Domain: Penetration Rate, Numbers Served Compared to Those in Need* — Texas participated in the State Treatment Needs Assessment Program (STNAP) and has used the treatment needs estimates derived from these studies in its Block Grant application (Forms 8 and 9). In the FFY 2006 Federal Block Grant application, Texas indicated 2,971,347 persons in need of treatment on Form 8 (need by sub-state region). On Form 9 (need by demographics), the Texas need estimate was substantially lower (586,553). The Texas need data in forms 8 and 9 were derived using different data sources and different analysis techniques. The National Survey on Drug Use and Health (NSDUH) publishes annual updates of treatment need for each State. The most recent NSDUH survey (representing responses collected in CY 2003 and CY 2004) indicates approximately 1,571,000 persons age 12 and older in Texas are in need of treatment (as defined by symptoms and behaviors that would meet the DSM



definition of dependence or abuse or alcohol or drugs in the prior 12 months [representing approximately 8.9% of the Texas population age 12 and older]). The NSDUH estimate for Texas, coincidentally, falls approximately halfway between the two estimates submitted by Texas in Federal Block Grant forms 8 and 9.

8. Retention in Services Domain: Initiation, Engagement, Continued Engagement in Services, Length of Stay, and Discharge Status —BHIPS has the capability to generate any number of time-based measures of client initiation and engagement in services (such as number of days from first contact to assessment, number of days from assessment to first face-to-face treatment service, etc). Date fields are collected on the profile record, assessment record, admission and discharge, progress records, service / billing records, etc. Texas uses the Texas Christian University framework for initiation and engagement in services. Texas has three providers in the STAR (Strengthening Treatment Access and Retention) program. One STAR program (The Patrician Movement, San Antonio) collects 18 access and retention measures and has documented decreased wait times to enter services, increased numbers of clients admitted to services, improved successful client transfers from residential to outpatient services and increased the number of clients engaged in services past the fourth session.

In addition, BHIPS contains many internal operation time-based flags and measures (such as daily listing of clients without activity for 30 days or 50 days etc, pending assessments due, upcoming treatment plan review dates, residential admissions with treatment plans completed in less than six days, timely referral to subsequent level of care following detox, etc).

BHIPS also provides real-time waiting lists and Federal Block Grant-compliant capacity management protocols for priority clients (pregnant, injectors, etc) and specified services (residential etc) and automatically removes a client from the waiting lists once he or she is admitted to the specified service or program. BHIPS also collect and reports the TEDS “days waiting to enter treatment” data element. BHIPS also has the capability of measuring the timing and periodicity of services (density of services provided, gaps in services, etc).

Texas has reported the supplemental discharge dataset to TEDS for many years. BHIPS captures discharge status in a format that is crosswalk-able to the TEDS standard. Texas actively monitors discharge events such as client discharges against medical advice, client discharges due to violation of program rules, administrative discharges as a percent of total discharges, and percent of clients successfully completing services by program. Texas has set target thresholds for several of these discharge measures (such as a target of 0% administrative discharges). In a review of 23 States that provided discharge records to TEDS in CY 2002 (OAS, SAMHSA), Texas had one of the highest rates of successful completion of service and one of the lowest rates of clients leaving against professional advice (“dropped out”), especially for outpatient and intensive outpatient services.

Texas also captures discharge records on almost every client who was admitted to service (93 percent or better) and successfully links the discharge record with the corresponding admission record approximately 100 percent of the time.



Texas has developed some standardization for the definition of “successful completion” of services. At present, clients who complete 75 percent or more of their treatment plans goals and objectives are considered to have successfully completed service. Each client’s discharge plan goals, objectives, and strategies and the completion status and dates for each are captured in the BHIPS Discharge Plan Detail form, the Discharge Objective Detail form, and the Discharge Strategy Detail form. Texas is considering further refinements in its operational definitions and criteria used to measure successful completion of services for various levels of care, modalities, or programs. For example, the definition of a successful completion for detox clients might include: alleviation of the crisis situation, a minimal three day length of stay, and a successful transfer to (and participation in) a subsequent appropriate level of care within three calendar days after discharge from detox. For intensive outpatient clients, the operational definition of successful completion might include elements such as completion of 75 percent or more of the client’s major treatment goals, active participation in services, specific quantities-densities-periodicities of services received during various the phases of service, participation in support groups, biological results, specific reductions in use, specific improvements in employment status, criminal justice involvement, etc.

The State does assess and monitor client length of stay for various service types and reports such at least quarterly. The State reports measures such as: length of stay by service type, length of stay within guidelines by service type, and detox length of stay exceeding guidelines. The State did not report length of stay (mean, median, standard deviation) by level of care in optional form T8 in the FFY 2006 Federal Block Grant application, but the State does have the capability to do so.

9. Client Perception of Care Domain — The State conducts an annual survey of client perception of care among its funded methadone clinics. Topics assessed include: perceived convenience of the methadone clinic location, perceived convenience of clinic operation hours, perceived communication of the clinic rules, policies, and client rights, perceived courtesy and friendliness of staff, perceived usefulness and consistency of information received, etc.

10. Cost Effectiveness of Treatment Services (Average Cost) Domain: Increase Treatment Services Provided Within Approved Cost Per Person Bands by Type of Treatment. — As discussed in the financial reporting section, the State generates episode cost estimates by level of care for the Federal Block Grant application. The State is aware of the NOMs cost-band concept and is awaiting the final development of this standard.

11. Use of Evidence-Based Practices Domain — The State uses a detailed multi-module standardized client assessment, based on the Addiction Severity Index ASI-Lite. BHIPS also captures (at admission, discharge, and on the client progress record) Diagnostic Statistical Manual DSM IV-TR (Text Revision) Axis I primary diagnostic impression (including non-substance diagnoses related to co-occurring disorders). In addition, Axis I secondary diagnostic impression, Axis II, Axis II, Axis IV, and Axis V (Global Assessment of Functioning) are captured on the client progress record. Also, a measure of client treatment stage (“readiness to



change” – pre-contemplation through action and maintenance) is collected at admission, discharge, and on the client progress records. Also collected on the admission and discharge records are various measures of the number of days (in the prior 30 days) in which the client experienced medical problems, educational / employment problems, substance abuse problems, family problems, social problems, and psychiatric problems.

Although BHIPS collects DSM and co-occurring psychiatric information, the State does not submit the DSM or “psychiatric problem” data elements to the TEDS supplemental admission dataset (as of February 2005, the date of the last TEDS data crosswalk for Texas).

Texas does not employ the ASAM PPC-2R (American Society of Addiction Medicine Patient Placement Criteria Second Edition, Revised) to assign clients to levels of care or services. Rather, Texas uses its screening instrument (Texas Christian University Drug Screen), its ASI-based assessment instrument, the DSM diagnostic impression data, client severity and number of problems, and other client measures as input to a State-developed placement protocol. Clients are categorized as high, medium, or low severity based on this protocol, with high severity clients referred to residential programs and medium and low severity clients referred to outpatient programs. Detox clients are placed based on withdrawal need and symptomology. The statewide placement decision for residential care (and continued stay reviews) is determined by Outreach Screening Assessment and Referral (OSAR) staff in each of the State’s 11 health service regions. Should the treatment provider disagree with the OSARs placement criteria, the provider may submit an appeal to the State office Medical Director who then makes a decision about appropriate placement by looking at the client’s on-line record.

12. Additional Data Capabilities of BHIPS — The discussion above reviewed the BHIPS data elements that are relevant to the data reporting requirements of NOMs-SOMMS, TEDS, and the Federal Block Grant application. BHIPS, however, has additional data collection features beyond these minimum federal requirements. For example, BHIPS also captures extensive post-discharge data from direct client contact interviews, as well as a client financial eligibility assessment module and evidence-based prevention modules. BHIPS also includes the GPRA data collection instrument (ATR version), as well as voucher and related modules.



II. Recommendations

The BHIPS database provides most of the data elements currently established by NOMs, TEDS, and the Federal Block Grant application. Texas may need to modify selected BHIPS data elements (such as arrest status) to conform to the current NOMs-SOMMS definitions. In addition, the State should monitor the development of the federal NOMs definitions still in development and revise the BHIPS data collection protocols as needed. The State may wish to revisit its treatment needs estimation protocol and consider adopting or adapting the Texas estimates from the NSDUH surveys.



REPORT #4: Transferring the BHIPS System to Other States: Technical Review

Transferring the BHIPS System to Other States

Technical Review

Casey Kochmer, Johnson, Bassin & Shaw, Inc.

I. Introduction

This portion of the technical review of BHIPS was conducted by Casey Kochmer of Johnson, Bassin & Shaw, Inc. (JBS), a subcontractor for PM TACC. As a result of the technical overview, this initial report sets out the information that will help states looking for a new system determine whether their program should consider migrating and adapting the BHIPS electronic system. The report also defines a few technical issues that states' information technology (IT) staffs will need to address in planning for migration to a BHIPS based system. This technical review includes the following:

- ***Selecting the BHIPS System.*** Section II provides an overview and summary of the issues that states can use to determine whether implementing the BHIPS system would be practical for their programs. To aid in this decision, a simple, high-level decision list is included. This list will both simplify and streamline the process of determining whether it will be practical for a program to implement the BHIPS system.
- ***Technical Notes.*** Section III provides a brief collection of technical notes of what the BHIPS system entails. This section is intended to give technical IT staff a very high-level overview of what they should expect to find in BHIPS.

II. Selecting the BHIPS System

This first overview section is intended for both the business and technical managers of those organizations that are considering an implementation of the BHIPS software. The primary decision about feasibility can be made without delving into much initial technical details. By looking at the following questions, states can quickly determine whether to use or reject the BHIPS system as practical for them.



Question 1: Just how portable is the BHIPS system for other state programs?

The first fact: . In many respects, this is probably the most advanced and efficient Drug and Alcohol system in service to-date. The second fact: The BHIPS software system is a stand-alone system. It was developed to serve a distinct organization and a specific set of business rules. The third fact: The code is openly and freely being shared for use in other organizations including drug courts, probation offices, and managed care.

The BHIPS system works well, and it successfully serves the needs for the State of Texas. Overall, this tool is on a par with the industry standard for completeness found in the tools of mid-size and larger organizations. This isn't a commercial product. As a result, this system will not have the documentation, or easily available contractor staff required for quick installation into new environments. In addition: moving any web system such as BHIPS will require some configuration changes to move into any new server. Certainly the existing code base serves the needs of the Texas program. However, entities who want to transfer the system to their organizations will have to spend time to provide additional documentation and some re-coding should they wish to modify it.

Translating systems across into new environments is always a challenging endeavor and cannot be taken lightly. Using the BHIPS system will not be as easy as dropping the software program onto another machine and running with it. Some re-coding will be required to make the BHIPS system work for any new organization. However, it is usually the case that it will be cheaper and faster to re-use this code than to "start from scratch".

Critical Fact:

Please note it's crucial to understand that two different versions of BHIPS exist: BHIPS .ASP and BHIPS .Net. The two versions of BHIPS appear almost identical to the users. The difference is more in the back end as BHIPS .Net is a new version just released in 2006 based upon the .Net framework. BHIPS .ASP is an older system based upon ASP 1.0 (active server pages). Both are available as a possible code base for other states to use for their own drug and alcohol systems. Each system has a different sweet spot for where it best fits to be used by an organization.

Conclusion:

In its current form, the BHIPS system requires some technical skills to implement. To date, the system (the BHIPS .ASP version) has been ported to the additional state of Nevada with fairly minimal effort of two months worth of labor. Nevada implemented the system pretty much in the original format of BHIPS. This does confirm that BHIPS is portable and is a valid system choice for other states.



Question 2: Does the BHIPS system mesh with the state organization's infrastructure and business needs?

The BHIPS system may or may not be the best choice to meet another state's needs. Before choosing to use this system, business and IT managers should look at, and understand the technical requirements. These requirements concern (1) the skills of the state's technical staff, (2) existing hardware and software capabilities.

For organizations with small IT departments

BHIPS .ASP should only be considered for state agencies having a minimal level of IT infrastructure.

BHIPS .ASP Requirement #1: Technical staff. Using the BHIPS .ASP product entails having access to technical staff with the following skill set:

- Mid-level DBA experience in Sybase Adaptive Server Enterprise SQL Server Database
- Mid-level ASP 1.0 Programmer
- Mid-level understanding of Internet Security policies

BHIPS .ASP Requirement #2: Hardware and software. To implement the BHIPS system, states need to have the following hardware and software as part of their IT infrastructure:

- Sybase Adaptive Server Enterprise SQL Server
- ASP 1.0
- Microsoft 2000/2003 server infrastructure
- Hosting MS IIS based Web Applications

BHIPS .ASP could be considered to be a Drug and Alcohol system starting place. For agencies which don't have a large technical infrastructure, this system's technology is about as basic as you are going to get with full functionality of a Drug and Alcohol electronic health record (EHR) system. It must be noted that any agency wishing to use any system will have to invest in staff who can work with the code base. In addition a help desk to aid users in the system will be required to aid in the running of the system for the user base. This means initially at least some part time programming / Internet resources, network hosting support and a help desk support staff position will have to exist to support this system.

If an organization does not have access to at least **two part-time** IT resources with these listed capabilities or if the above technologies do not mesh with the organization's technology base, then a state **should not** use the BHIPS .ASP system. In addition this is just the **starting** layout of personal.

With time the support staff will increase as the system grows with agency usage!

Over a period of two years this number will need to become two full time resources to support the system (one resource must be a DBA). Using the BHIPS .ASP system requires an organization willing to commit



to the technologies listed above. In addition, using this system will usually entail customization to fit the state's organization. This means a state will have to make long term plans to grow with this system over time. While initially only a few part time resources could be enough, over time this number **has to grow**. Without solid long term support the state's infrastructure will not be able to maintain this system and any implementation will languish to failure. For example, the core functionality was deployed using 4 FTE's. Additional functionality has been added. As many as 6 FTE's have worked on the system at a time including the .NET conversion. The three key resources for the team have remained in-tact since the first development effort.

For organizations with advance IT departments

For agencies with more advanced technical departments then BHIPS .Net is worth considering.

BHIPS .Net Requirement #1: Technical staff. Using the BHIPS .Net product entails having access to technical staff with the following skill set:

- Mid-level experience in a Enterprise SQL Server Database (either Sybase or Microsoft)
- Senior level ASP.Net with C# language skills
- Mid-level understanding of Internet Security policies and Web Clustering

BHIPS .Net Requirement #2: Hardware and software. To implement the BHIPS .Net system, states need to have the following hardware and software as part of their IT infrastructure:

- Enterprise SQL Server hosting experience (either Sybase or Microsoft)
- ASP.Net / Hosting MS IIS based Web Applications
- Active Directory and Microsoft 2003 servers

If an organization does not have access to three full-time personnel with these listed capabilities or if the above technologies do not mesh with the organization's technology base, then a state **should not** use the BHIPS .Net system. Using the BHIPS .Net system requires an organization with solid knowledge and capabilities of the technologies listed above. In addition, using this system will usually entail customization to fit the state's organization. If the proper infrastructure of resources does not already exist in an organization, then the amount of time to learn, modify, and place the BHIPS system into production could be excessive. However if an organization does not wish to make massive changes to the system or if an organization has a system they are changing from and has existing knowledgeable staff, implementation of the BHIPS is a practical solution.



Question 3: Can the BHIPS system be ported to another database?

Many agencies have a standard database platform they are required to use. Both BHIPS .ASP and BHIPS .Net are built upon Sybase Adaptive Server Enterprise SQL Server. This is no longer a common database, with only a few percent of overall market share today. Many state agencies use either Microsoft SQL Server or Oracle.

Sybase Adaptive Server Enterprise SQL Server and MS SQL Server do share a common code base. As a result either BHIPS system could be migrated relatively easily to MS SQLServer 2000 / 2005. Such a migration requires at least one Staff member with senior level skill set in MS SQL Server and roughly 6 weeks to three months worth of work for 1.5 to 2 FTE.

Any state having to perform a migration makes using the system less likely to be of value, due to the additional costs. However, migration may still be preferable to not doing anything or migrating to a comparable proprietary EHR. Also due to the experience level required to perform a migration this is something I do not recommend for smaller departments with little technical experience or no existing technical staff.

FOR the BHIPS .ASP version:

I would only recommend using BHIPS .ASP for states that are also willing to use the existing Sybase Adaptive Server Enterprise SQL Server database. Moving the system to Oracle would be more difficult and time consuming. Such a migration requires at least one Staff member with senior level skill set in Oracle and roughly two to three months worth of work for 2 full FTE.

FOR the BHIPS .NET version:

In order to use BHIPS .NET system, a state would have a more robust technical department. Any such agency with a robust technical department could easily perform the database migration.

Also note, this BHIPS .NET is designed in practice to be database independent to a large degree. A tool called Code Smith is used to auto generate most of the stored procedures. So the process of migrating the BHIPS .Net version to other databases should go much more rapidly than what is estimated here (in theory, a third of the listed time). Such a migration has not been performed to date, so this report is being conservative in its estimate.



Question 4: Does the BHIPS system mesh with the state organization's business needs?

The BHIPS system may or may not be the best choice to meet another state's needs. Before choosing to use this system, business and IT managers should also look at, and understand the amount of customization needed to meet their needs. If technical resources (skilled staff, hardware, and software) are available, then the next consideration is customization. How much customization will be required to fit a state organization's business rules? States will need to customize the system as follows:

- Add new rules and conditions required by the organization
- Create interfaces to any current system in place
- Update the database to reflect an organizational data structure and element names

States need to assess the extent to which they must modify the BHIPS system, determining the rough percentage of change that will be required to adapt the system. The following table recommends what actions to take, according to the estimated amount of change that will be required.



Amount of change to fit state's business rules	Recommended action
One-third or more (33%)	Don't implement the BHIPS system. When this level of change is needed, a state is effectively writing a new system. It would be preferable to start with a clean slate and simply develop a new software model. A second option would be to expand a different electronic system that would require fewer changes.
Roughly one-fourth (21 to 30%)	Implement the BHIPS system only if it meshes strongly with your organization's culture. Your organization should already be <i>very</i> firmly set in this applications technology and should use tools in a similar fashion. This means that many of the changes are database list-based, and that the overall flow of the business process matches the Texas program closely. This also means that no major rewriting will be needed to interface with other existing systems. Before proceeding, bring in a second outside technical person to help review and validate whether the planned changes make sense.
From 10% to 20%	Develop an estimated timeframe for changes. Before making a final decision, the state's technical staff should review the needed changes and build a time estimate. If the time estimate is acceptable, and the organization meets the requirements regarding technical staff and hardware/software, then it makes sense to implement the BHIPS system.
Less than 10%	Decide on implementation. Provided that the organization passes the technical staff and hardware/software requirements, then it makes sense to implement the BHIPS system.

Keep in mind that no third-party experts exist for this tool. Unless a state organization is working with a group of programmers who are accustomed to converting code, then making changes will be a more complex issue. Programmers will need time to become expert in this new system. It does not take too many changes before it becomes more efficient to write a new code rather than modify an existing one. Fortunately, oftentimes systems like this match relatively closely among the various states, the real differences come in regarding state laws which require specialized functionality.

The National Data Infrastructure Improvement Consortium (NDIIC) is a 501(c) 3 corporation created by NASADAD in order to assist states in data system development and implementation. The organization's mission is to facilitate state to state support in the deployment of open-source, non-proprietary web-based data solutions. Existing applications range from reporting systems to comprehensive electronic health records and claims payment systems. Member states are committed to sharing all resources related to planning, development, deployment and ongoing management of these systems. The Consortium is developing a virtual library of existing applications and tools to assist states who are interested in utilizing these solutions. By collaborating it is possible for states who have implemented compatible applications to reduce cycle times and costs of system enhancements.



Question 5: What are the time considerations when modifying the BHIPS code?

One aspect of deciding on use of the BHIPS system is the time required for modification. Moving code can be difficult, this isn't a drop-in spreadsheet program like Excel. It is a multi-step process that will require a cross-walking of a state's existing electronic health record requirements to the BHIPS system. An estimated timeframe for an **ideal** case would be as follows:

- **Planning.** This process will take 1 to 4 weeks.
- **Programming.** Once the conversion maps are completed, then the programming needs to happen. This will take approximately 2 to 6 weeks. This is the coding to move the basic BHIPS system over into a new environment.
- **Implementation of a basic version.** On average, a state can expect to spend 3 to 4 weeks in implementing a basic version of the BHIPS system with very *basic* customization. This assumes that the state has technical resources already in place and available.
- **Total time for system build-out.** A state should plan that an ideal build-out will require 6 to 12 weeks from start to finish. This timeframe factors in the learning curve, *minor* modifications of 5 percent, and some simple cross-data feeds. For a complex build-out, expect to spend 4 to 6 months. This estimated time for the complex build-out could be cut down slightly if the state organization is advanced in its technical department.

Question 6: What are the size considerations?

The BHIPS system is designed for the state of Texas, with a relatively large load of active providers and system administrators. The BHIPS system is a proven system which can scale to meet the needs of most other states.

Currently the BHIPS system works with:

- 2,000 current users.
- 3,800 overall users since inception.
- 212 providers.

The BHIPS.ASP system should be considered for states of this size or smaller. If a State has higher load footprint, then BHIPS.Net should be considered for implementation instead.

The BHIPS.Net system will scale larger gracefully by using clustering for larger user loads.



Question 7: How about data migration considerations?

If a state has an existing system, another consideration will be data migration from the old system to the new system.

Since the type of data in this system typical is pretty similar across states, data migration is usually very feasible. A standard migration requires at least one Staff member with senior level skill set as a DBA and roughly two to three months worth of work for 1.5 to 2 overall FTE. The second FTE would be needed to help with requirement gathering and testing of the data conversion. Actual data migration times will vary depending on your states data complexities, but this is a good starting estimate to get a rough estimate if it is worth porting a current system over to BHIPS.

Question 8: Other considerations?

Both versions of BHIPS presented here are viable systems which can be ported to other states to use. The key is to understand not how flexible the systems are, but rather how flexible are your requirements. The more you can use these systems as is the easier it is to get up and running quickly. Nevada is a perfect example. Nevada did not worry about porting over an old system, and used BHIPS pretty much as is, adding only a few additional screens. As a result, Nevada was able to get the BHIPS ASP system up and running in roughly two months time at virtually no cost (I estimate well under 50k, but I currently do not have the exact numbers). For the type of system BHIPS represents, that is amazing. In many respects Nevada represents the best case scenario in using BHIPS. To give an idea of how much money implementing a custom-built system like BHIPS normally would cost, building a basic BHIPS style system from scratch typically takes a full year of time and \$800,000 in costs. Re-using systems like BHIPS can be a major cost benefit, since Texas has been willing to share the code freely along with helpful mentoring advice.

BHIPS is a solid and very good product. It is a software product, which means how well it will work in a state is dependent on how much a state works, supports and invests into the system itself.

The other key consideration is the requirement of a help desk. Systems like BHIPS are only successful when a state also works closely with the providers and users. BHIPS requires such a commitment where a help desk typically runs 2 to 3 full time employees, for a larger state. Smaller states could conceivably get by with a help desk staff of 1.5 resources.



III. Technical Notes

Browser Support:

The system has been tested to work against the major browsers. The baseline is Netscape 6.2 and Explorer 6.0.

Help Desk:

Systems of this nature require a mature help desk to help the user base learn and use the system. Texas uses 2.5 program (non-technical) FTEs to staff their help desk.

Developer Load:

BHIPS .ASP Texas used 1 FTE for code base maintenance and .5 FTE for the DBA position.

BHIPS .Net is maintained and expanded by 4 developers.

All network support was outsourced to their Network support department.

It typically takes a new programmer with medium .Net experience about one month to learn and become productive within the BHIPS .Net architecture.

Security Considerations:

The system uses SSL 128 bit key security on all transactions. User accounts use strong passwords. All passwords are encrypted within the database.

BHIPS .NET currently uses Active Directory for security. The system is about to be expanded to also provide LDAP and Database based security access mechanisms.

All access is role based.

Code Sharing Agreements:

Texas is freely sharing the code base as Open source.



BHIPS .ASP Architecture notes:

This is the classic two tier ASP system (ASP web pages directly connecting to a database). The ASP web pages contain all the logic for presentation. All business logic is performed within stored procedures.

BHIPS .Net Architecture notes:

This is a solid design with a very strong .Net framework. This system is as close to a full MVC (model view controller system) which .Net 1.0 is capable of delivering. Technically this is an advanced well thought-out architecture. The code is clean, and contains the standard set of documentation one would expect for this size project. In many respects this is probably the most advanced and efficient Drug and Alcohol system in service to-date. WITS is of similar level of technical architecture. However, due to implementation style, BHIPS in my estimation appears to be the more practical of the two designs.

Parts of the BHIPS .NET code framework are based upon the WITS Framework and then it was reworked so the application could run upon a set of clustered servers.

To indicate the level of sophistication: Texas is starting to develop a third version of BHIPS which will integrate additional state departments in a service oriented architecture design. This shows how Texas has been able to leverage BHIPS .Net code base into a very functional and practical system.

System Loading Characteristics

The current database Texas maintains has five years worth of data, with 200,000 admission records. The total database size is at 100 gigabytes, where one gigabyte of data is inputted into the system each month.

On a daily basis, at any one moment, the web system maintains: 600 active sessions and the typical activity is 25 concurrent users.



Appendix

Behavioral Health Integrated Provider System (BHIPS)

The current functionality of the system is represented in this table:

Functionality	Description
Client Profile (demographics)	When a client presents for treatment, the counselor collects basic demographic information in the Client Profile. This record becomes the anchor for the clinical file.
Screening Instrument	After the Client Profile is collected the clinician performs a brief Screening. If the score on the screening indicates potential substance abuse problems, the counselor completes a full assessment.
Addiction Severity Index Assessment (ASI-Lite)	The assessment instrument is based on the Addiction Severity Index (ASI)—Lite and collects information about the client's history and current status. It is divided into sections that include collection of general, medical, employment, substance use, legal, family, and psychiatric history and current status of the client. There is summary that extracts significant information from all sections of the assessment onto one screen, providing a single place to view important information without having to page from section to section. This information helps the provider when making decisions regarding a client's need for treatment for a substance abuse, dependency problem or mental health problem and to make a diagnosis and determine the client's level of severity. If the client is eligible for services, placement criteria is used to determine the type of services the client needs and the client is admitted for treatment.
Clinician's Assessment	A progress assessment tool is also available to provide a quantitative measure of the client's clinical progress over the course of treatment. The Clinician's Assessment collects information about the clinician's observations of the client. It is somewhat subjective in nature but allows the clinician to capture educated opinions on the client's current status. To aid in selecting the correct rating, a description of the symptoms the client would exhibit were he/she extreme, is given. The rating may be scaled back based on the clinician's observations and impressions. This assessment is repeated throughout the cycle of care. The first time this information is collected is in the initial assessment. It is also performed over the course of treatment and at the end of treatment, the counselor completes the Discharge Report which also contains the Clinician's Assessment. When a rating is selected, it gets stored with a numeric value, i.e., None = 0, Extreme = 4. A BHIPS report is available where the numbers from the various iterations of the clinician's assessment are displayed. It provides a tool to aid in the determining whether the client is improving. Using this instrument, the clinician can see a picture of the client's progress from the time the client presented for treatment, throughout treatment and at the time of Discharge.
DSM-IV Diagnostic Instrument	The DSM-IV Diagnostic instrument summarizes the assessment, collecting a diagnostic impression. This impression is multi-axial in that it captures the state of the client's alcohol and drug abuse and mental health disorders, personality and mental retardation, medical conditions, psychosocial and environmental problems, and assessment of the client's functioning.
Access to Recovery (ATR) Voucher	This functionality manages the treatment and recovery support services to clients involved in the criminal justice system through drug courts or probationers. A client is evaluated by an independent assessment provider using the instruments in the BHIPS and determines the client's needs. Services provided are residential and outpatient services as well as recovery support services including but not limited to Childcare, Transportation, Relapse Prevention, Family counseling, etc. A voucher is created for the client and is good for one year or until the client leaves the ATR program.
Financial Eligibility	Providers are required to determine whether an applicant is financially eligible to receive services funded by DSHS. The necessary information is gathered and the BHIPS calculates whether the applicant is financially eligible and whether or not the applicant will be responsible for payment of a portion of the treatment provided. Billing is blocked when a client is not financially eligible for state funded services or is responsible for a portion of his/her treatment. The federal poverty level is used



Functionality	Description
	along with a sliding fee scale to determine financial eligibility.
Treatment Plan	The information collected in the assessment is also used to develop a treatment plan for the client. The Treatment Plan is generated from a completed Assessment. A comprehensive list of client problems is created based on how the client responds to specific questions in the Assessment. This insures that no problems go unidentified and unaddressed. You may add goals, objectives and strategies to the problems to be treated. Clinician's may also refer and defer problems. The Treatment Plan also includes a Discharge Plan. Multiple versions of the Treatment Plan are maintained so updates can be made and the history of the plan can be kept.
Treatment Plan Review	Periodically, the counselor completes a Treatment Plan Review and revises the Treatment Plan to adjust to the changing needs of the client. The Treatment Plan Review is generated from the Treatment Plan. Progress toward goals on all problems with a status of 'Treat' is a required element as well as justification for continued length of stay, transfer or discharge. A history of the Treatment Plan Review is also maintained.
OSAR Residential Approval	Treatment providers need authorization to place a client in residential services. Outreach, Screening, Assessment and Referral (OSAR) providers evaluate clients and refer them to the appropriate treatment provider that offers the services needed as indicated by the client's severity. If the client presents at the treatment provider instead of the OSAR, the treatment provider evaluates the client and requests approval for residential services if they are needed. OSAR approval is based on DSHS placement criteria. Should the client need more time in residential service than has been approved, there is an extension process where the OSAR approves or denies additional residential services.
Admission Report	An Admission Report is used to complete the admission process and capture the client's baseline data. The BHIPS already knows whether the client is an adult or youth from the Client Profile record so the appropriate form is automatically loaded when you select the Admissions menu item. When this form is saved, the provider may begin submitting claims to DSHS for reimbursement.
Progress Notes	As services are delivered, the counselor documents the treatment in Progress Notes that are tied to objectives in the client's treatment plan, ensuring that all services provided are matched with the client's needs. The Progress Note captures the client's progress in counseling and reflects the results of a specific service provided. Once a progress note is saved for a billable service, a HIPAA Pending Claim is generated for submission to DSHS for payment.
Didactic/Educational Progress Notes	The Didactic/Educational Group Notes screen is used to capture and display the didactic and educational services provided for a large group. Up to 35 patients can be selected and when saved, each patient's Activity List is populated with the group note. Billable claims are generated for submission to DSHS for payment.
Discharge Reports	The Discharge screen is used to collect discharge information and is filled out at the time a client is discharged or transferred from a provider facility. All of the DSHS required data is captured when filling out this form. The system determines if the client is an adult or youth from the Admission Report and automatically loads the appropriate discharge form. The system does not allow a client to receive additional services, progress reports, discharges, or follow-ups without having another active Admission Report.
Discharge Summary	A Discharge Summary is prepared that outlines the client's needs, treatments the client received, progress toward goals etc.
Follow-up Reports	The Follow-Up form is used to collect and display follow-up information. The BHIPS knows whether to display an Adult, Youth, or Detox Follow-up from the client's Admission report. Follow-up information is collected at various intervals after the client has been discharged. The frequency of follow-ups is determined by the provider and the number of Follow-up reports associated with the discharge is unlimited. All of the DSHS required data is captured when filling out this form.
HIPAA Compliant Billing Transactions	As a by-product of providers entering clinical data into the system, BHIPS generates HIPAA compliant transactions for payment of substance abuse and mental health services provided.



Functionality	Description
Automated Messaging/ Reminders	Automated messages remind clinicians when processes and documentation are coming due. This helps the clinician stay current with each client's treatment and insures they are complying by DSHS rules and Federal and State reporting requirements. There is a My Desk screen that is displayed when logged on to BHIPS or when clicking the My Desk button on the BHIPS navigation menu. This screen displays a list of messages that were generated from within BHIPS, such as referrals, referral responses, assessment is due, treatment plan review is due, etc. and system messages. Navigation to the appropriate place in the BHIPS is accomplished by clicking on the message.
Automated Release of Confidential Information/Revoke of Consent	To facilitate continuity of care among different providers, BHIPS automates the process for obtaining client authorization to release confidential information and allows authorized providers to share information electronically. It is a federal law that a hard copy of the form must be filled out, printed, signed, and filed in his/her record to release. When the Consent form is saved in BHIPS, the disclosee has immediate access to the information indicated on the Consent form unless the consent is revoked by the client. When a Consent form is saved, changes to it are prohibited. If a mistake is made, the user may either revoke the Consent form previously saved, or create a new one to replace the original. Revoking Consent removes the ability of the disclosee to view the information.
Automated Client Referral/Transfer	When a client authorizes the release of confidential information, the clinician can refer a client to another service provider using the Referral screen. The Referral screen is used to collect and display referral information and to send the referral to the receiving provider. When the Send Referral button on the Referral screen is selected, BHIPS creates a Referral record and sends a message to the receiving provider's intake coordinator. Once a referral has been sent it cannot be changed or deleted. Note: Before you can send a referral you must obtain the client's signed consent to release confidential information to the receiving provider. If the client refuses to sign a Consent form, the referral may not be made using the BHIPS automated process. The BHIPS will display an error message if a referral is submitted with no active Consent form in the system for the receiving provider.
Wait List	The Wait List screen is used to place clients on a Wait List. The entire list is accessible by using the On-line Wait List report.
Available Capacity	The Available Capacity screen is used daily to report capacity. Reports are available to the public from the BHIPS homepage so individuals seeking services will know where there are openings.
Staff Member Tracking	The Provider Staff screen is used to collect and display general information about a staff member. If the staff member is currently employed, his/her name is available on all the forms in the system, where staff assignments are made.
Role Based Application Security	Access to the BHIPS requires that each staff member have a logon ID and a password. The staff member must also be assigned one or more roles. Roles are based on different jobs in the organization and are used to limit access to screens to only those needed to perform the job.
Reports and Downloads	The BHIPS has many reports that may be run on demand. These reports come from two different sources of data. A few reports come from the on-line system where the data is as up to date as the last transaction entered into the system. However, most of the reports are created using data from the BHIPS data warehouse. Each night all new and changed records are extracted from the BHIPS and added to the BHIPS data warehouse. This data is kept separate from the on-line system so large or complicated reports can run without degrading the response time of the on-line system. Any of the reports may be downloaded into a Microsoft Excel spreadsheet or a Microsoft Word document.
Assign Staff Access	With the Assign Staff Access screen, DSHS managers may assign view-only access to a provider's data for a specified amount of time. The client's name is masked so the staff member does not see it. This is useful in performing audits and monitoring.
Case Management	Using the Case Management functionality in the system allows case managers/counselors to keep track of services (treatment and non-treatment) provided for clients. Once a case is opened, a clinician can enter services, referrals, and referral follow-ups.
HEI Measures and	HIV Early Intervention (HEI) programs perform case management, provide services, client referrals



Functionality	Description
Narrative	and follow-ups to see if the client made contact. The HEI Measures and Narrative functionality generates a quarterly report, summing these activities and calculating performance measures from the data. It also has a narrative section for reporting progress, problems and plans for the program.
Performance and Activity Measures Monthly Report	Prevention and Intervention providers are required to report their performance and activity measures monthly. Measures include numbers served and demographics.
Check Capacity	Providers report bed capacity for residential programs each morning by 11:00 am. The Check Capacity functionality aids providers in finding openings with other organizations when they do not have room.
Pending Claims	Each time a billable service is recorded for outpatient or residential services, a claim is generated on the Pending Claims screen. Selecting a link on a claim will present the appropriate HIPAA transaction (837-Professional for Outpatient or 837-Institutional for Residential) for submission to DSHS for payment.
Outpatient or Residential Claim	Submitting a pending claim will bill DSHS for services provided. HIPAA transaction codes and modifiers are automatically generated based on the service type selected when the service is recorded.
Claim Status	Once a pending claim has been submitted, the Claim Status List screen is used to track the status of the claim. Each claim can be accessed using the link to the claim.
Payment Notification	When a payment is made, a HIPAA compliant 835 Payment Notification record is available for view by selecting the link to the record on the Claim Status screen.
BHIPS Forum	BHIPS has a bulletin board where users may communicate among themselves, sharing ideas and asking questions. DSHS also uses The Forum for communicating new and changed functionality in the system.
Curriculum Outcome Measures	Providers report quarterly on the outcomes of prevention and intervention classes provided at schools and community sites.