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CHAPTER

Award for Behavioral Health

HERITAGE BEHAVIORAL HEALTH CENTER, INC.

SUMMARY AND OVERVIEW

Heritage Behavioral Health Center is a comprehensive, community-based mental health and substance abuse clinic. In the mid-1990's, competition for its service contracts was increasing and, as the primary behavioral healthcare provider in central Illinois, Heritage was poorly prepared. Changes in the way the organization viewed, stored, and used information were deemed to be critical to attain the competitive edge Heritage needed.

In 1995, Heritage committed to an aggressive plan to replace out-dated back office systems with an agency-wide, point of service information system that would give the organization this competitive edge in quality-based, effective clinical services. The focal point of this information system was a Computerized Patient Record (CPR) that supported the delivery of care. Over the past six years, Heritage has developed a computer-based patient record that is transforming its delivery of mental health and substance abuse treatment services. This transformation involved changing the organizational culture through the extensive use of integrated teams, and it instilled solid mission-based values into the fabric of operations, decision-making, and service delivery.

Cross-functional teams, with representatives from frontline staff to corporate leadership, led the project as Heritage completely overhauled critical direct care and support service processes to take fullest advantage of the new technology. This technology overhaul impacted every facet of the organization's process including front-desk customer service, clinical planning, and real-time access to patient information during treatment. Its main purpose was to create a user-friendly and highly accessible tool for caregivers and those who support them.

The result of the CPR project is an integrated record that has improved the quality of care, streamlined record-keeping, improved access to information, and made billing and reporting functions more efficient. While the system continues to evolve, the documentation of all scheduling, assessments, service encounters, treatment plans, and treatment plan reviews is currently being done in the CPR. Automating the complex documentation of the psycho-social rehabilitation program is currently the focus of developmental activity with an implementation target of the end of December 2001. Work on residential service shift change reports will begin next.

History of Heritage Behavioral Health

Heritage Behavioral Health traces its origin to March 1, 1956, when the Mental Health Clinic of Macon County was founded by a group of area residents. In 1967, the Alcoholism Advisory Council for the Decatur Area was established to provide substance abuse services. In 1970, the Mental Health Clinic became the Decatur Mental Health Center, which merged with the Alcoholism Advisory Council in 1987. In 1998, Decatur Mental Health Center became Heritage Behavioral Health Center, Inc.

Heritage Behavioral Health is a private, not-for-profit corporation based in downtown Decatur and serving greater Macon County, Illinois. It is governed by a 15-member Board of Directors that oversees an annual budget of just over \$8 million and a workforce of approximately 200 staff. Over its 45-year history, Heritage has built a legacy of high quality, low-cost services provided without regard to the recipient's ability to pay.

Heritage Behavioral Health specializes in treating the most serious disorders. It offers a broad continuum of community-based services, with pre- and post-admission coordination with public and private inpatient care. Its mental health services are heavily oriented to case management and psycho-social rehabilitation and include a variety of short and long-term residential services. Substance abuse services include detoxification; residential rehabilitation; intensive inpatient and outpatient, including methadone therapy; and specialized services for women, adolescents, and individuals involved with the criminal justice system. Heritage operates from four treatment sites and has staff assigned to several additional sites run by other community service organizations. The organization treats over 5,000 people annually, with approximately 3,500 clients in active treatment at any given time.

Heritage Behavioral Health also provides a variety of innovative outreach, crisis intervention, and community-based prevention services to thousands of other area residents. These services are operated from a number of other sites throughout Decatur, including schools and public housing facilities.

Background on Information Management Systems

The collection and processing of data in the publicly supported behavioral health system in Illinois is an awkward and cumbersome task. The reporting of service data to the state requires Heritage to report to multiple incompatible data systems. In addition, three separate data sets exist for the recording and billing of Medicaid-reimbursable mental health or substance abuse services. Complicating information management even further, none of these state-driven data systems has the ability to provide useful data for billing third-party payers, such as insurance companies, or for operational management. Overall, the state reporting requires inefficient double and triple data entry, yet provides little value to caregivers or the service delivery process.

In 1994, Heritage faced the possibility that its state contracts and Medicaid-reimbursable services would be subject to increased competition. Although it was the primary provider of publicly supported behavioral healthcare in the greater Decatur area, Heritage's inefficient data collection methods and antiquated information systems rendered it poorly prepared for that competition. As part of its strategic planning, Heritage committed to the development of an extensive, internal corporate information network (the Heritage Network). At the heart of this effort was the creation of a computer-based patient record (CPR), an initiative code-named Project Jericho.

MANAGEMENT

Strategic Vision and Objectives

The development of the Heritage Network and the CPR began in 1995, and, from the outset, Heritage concentrated on the vision of an improved information system that would be easily accessible to the end user and would add significant value to the function of client care. Heritage recognized that growing demands for quality control, accountability, and documentation conflicted with efficient service delivery. To reconcile this conflict and improve the corporation's competitive position, Heritage needed to improve the performance of their information system.

The CPR project envisioned using an information system to improve the quality and efficiency of client services. Corporate leadership translated that vision into a pragmatic set of four strategic objectives:

- Strengthen the service delivery process: develop a computer-based patient record that enhances client care and serves as a tool for caregivers;
- Improve the efficiency of the information system: automate and streamline data collection, initiate real-time data entry, and stop collecting unnecessary data;
- Increase staff access to information; and
- Enhance efforts to improve performance: monitor the quality of internal operations and meet the increasing demands of external funding and regulatory bodies.

The vision and objectives, conditioned by corporate values, were reflected in the process used to oversee the development of the CPR. First, corporate leadership committed to designing all CPR processes and screens around the needs of the end user. Second, leadership determined that using cross-functional teams to develop the CPR would maximize end-user participation, increasing the likelihood of a user-friendly product. Third, leadership determined that its service delivery, administrative support and financial systems needed to be re-engineered to take fullest advantage of the new technology. Finally, Heritage decided to customize any CPR software product purchased to fit the re-engineered service delivery system.

Needs Assessment and Acquisition

In August 1994, Heritage Behavioral Health retained an information systems consultant, A. Sheree Graves of Aris, Inc., to conduct a review of its information systems. Over the course of the next year, Ms. Graves worked with an interdisciplinary team consisting of management, support, technical, and direct care staff. This team, known as the Computer Services Team, evaluated existing systems and operational functions of the organization, identifying strengths and weaknesses. They developed short-term solutions to improve information management, and Aris began to introduce the Team to state-of-the-art technology solutions.

By July 1995, the Computer Services Team was focused on long-term solutions and it recommended the development of a comprehensive, PC-based LAN/WAN network with the core functions of electronic mail, group work, scheduling, clinical information management, and accounts receivable. The proposal called for Lotus Notes to be the backbone of the network, with Chart Expert, a product of Health Expert Systems, as the client record. Enterprise Scheduler, a product of ESI, was chosen for appointment scheduling. (Note: Chart Expert and Enterprise Scheduler were later replaced by Clinician's Desktop and HSIS, products of the Echo Group. Infoscriber, a product of Infoscriber, Inc., was added for medication management.)

During this time, corporate leaders of Heritage had been informing the Board of Directors of the problems with its information systems. Annual operating plans for fiscal years 1994-95 and 1995-96 cited the need to significantly improve the performance of corporate information systems and contained objectives designed to move the corporation forward in this area. Routine reports by the CEO to the Board also noted progress on the needs assessment being conducted. In September of 1995, the CEO presented the proposal to develop the Heritage Network and the CPR to the Board of Directors. The Board approved the recommendation and the acquisition of the hardware, software, consultation, and training necessary to undertake the initiative.

Project Business Plan

Since Heritage is a non-profit corporation with limited financial resources, a manageable financial plan had to be prepared to secure the approval of the Board of Directors. The obvious foundation of that plan was the need for reduced pricing. Since 1994, Heritage had been working with three other behavioral health centers in Central Illinois to jointly address the problems of information management. As it approached the decision point in August of 1995, Heritage successfully negotiated reduced pricing with hardware and software vendors based on a four-party purchase. Later two members of the coalition did not proceed with purchasing the products and the joint effort was abandoned.

There were two other significant components to funding the plan. The State of Illinois was preparing to close the state psychiatric hospital in Decatur, and Heritage was able to negotiate one-time funding from the State to help purchase the software for the CPR. In addition, the plan would redirect the money that Heritage was wasting on outdated systems.

Corporate leadership estimated that the initial expenditures for equipment, software, and consultation would total just over \$500,000. Further, it estimated that annual operating costs would be approximately \$125,000. This would develop and maintain the internal Heritage Network with a total of 80 workstations, offering group work, personal productivity software, electronic scheduling, and the CPR. It would also cover the cost of installation, consultation, project leadership, and training.

The financial plan applied the one-time funding from the State of Illinois and spread the balance of the start-up costs over several years. Leadership recommended to the Board of Directors that the equipment called for by the implementation plan be leased over a four-year period. Heritage then committed approximately \$35,000 annually in new funding to be added to the re-direction of the \$90,000 in current expenditures to cover the operating costs of the project.

Project Leadership and Governance

With the approval of the project, a leadership process had to be developed. Throughout the organization, Heritage relies heavily on a combination of executive leadership and cross-functional teams for organizational decision-making. As a corporation, Heritage is governed by a

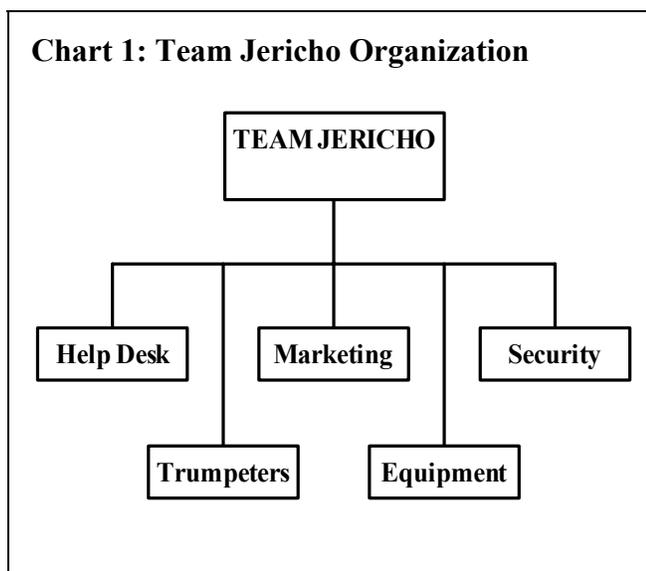
15-member Board of Directors, which delegates corporate management responsibilities to the President and CEO (see Appendix A. Organizational Chart). Leadership and coordination of corporate operations come from the Leadership Council, chaired by the CEO. The Leadership Council has established a variety of cross-functional standing teams that are assigned responsibilities for monitoring specific areas of overall organizational performance (see Appendix B. Chart of Cross Functional Teams).

Recognizing the significance of the risks being taken, corporate leadership made two commitments as the project began. First, the CEO and the Vice Presidents would remain deeply involved in the project. Second, cross-functional teams would develop the Network and the CPR. With these commitments in mind, the Computer Services Team was reconstituted to expand the clinical representation. Renamed the Information Council (ICON), the team was charged with full responsibility for planning, implementing, and overseeing the new information system. The membership of ICON included the CEO, the vice presidents, other team or group leaders, case managers, clinicians, and representatives from the clerical, accounting, and accounts receivable teams. Aris was retained to serve as “chief information officer” for the corporation and to staff ICON.

In 1998, ICON recommended that another cross-functional team be established to concentrate solely on the development of the CPR. The creation of the new team was approved by the Leadership Council and the project was code-named “Project Jericho,” a reference to the walls of information system inefficiency that would have to come down. ICON retained the responsibility for managing overall information systems functions at Heritage. The newly formed Team Jericho was charged with developing the CPR. Several ICON members, including the CEO and the Vice Presidents, were placed on both teams to assure good communication and more direct care staff members were added to Team Jericho.

As the information systems and the CPR developed, it became clear that the CPR had become the cornerstone of all of Heritage’s information management functions. In September 2000, ICON recommended collapsing its responsibilities into Team Jericho to streamline the decision-making process for the CPR project. The Leadership Council concurred, giving Team Jericho responsibility for overseeing all information management systems. In October, ICON was disbanded.

At present, Team Jericho is responsible for overseeing the planning, development, and management of corporate information systems, including the Heritage Network and the CPR. It is made up of case managers, clinicians, financial specialists, a secretary, team leaders, group leaders, the vice presidents and the CEO. It has established five sub-teams, with additional representation from staff and leaders throughout the organization (see Chart 1: Team Jericho Organization). HelpDesk develops resources to provide immediate assistance to staff having problems using corporate equipment or systems.



Marketing promotes the Heritage Network and the CPR. Security ensures the confidentiality, security, and integrity of equipment and systems as well as HIPAA compliance. Trumpeters review and streamline information flow in critical processes throughout the corporation. Equipment reviews and approves all requests for system hardware, including requests for new workstations.

Project Staffing

At the outset of the project, Heritage employed one full-time Information Systems Specialist and contracted with Aris, Inc., for project leadership and the functions of the Chief Information Officer. As the Heritage Network grew, so did the information systems staff allocation. Early in the development of the CPR, Heritage designated multiple Application Administrators (AA's) to ensure that no one member of the staff became irreplaceable. At present, Heritage employs three (3) full-time Information Systems staff members. The Information Systems Program Leader handles the functions of chief information officer, and Aris continues to be retained for overall project leadership. Two of the three Information Systems Team members, the Program Leader for Family Services and the Vice President for Management Services, serve as Application Administrators for the CPR.

Project Risk Management

As the project unfolded, Heritage recognized several areas of significant risk. Most obvious was the security and confidentiality of patient records. A second concern was the potential for lost productivity as the CPR was implemented. The third concern was the potential for staff resistance.

In the area of security and confidentiality, Heritage continues to take steps to ensure system protection and redundancy as well as limit access. The system and the CPR have various, established access levels that control how users can access the system, software, screens, and fields within screens. As Heritage has implemented the CPR, additional levels and types of security and information safeguards have been more clearly identified.

As for productivity, the team-oriented development process and the commitment to system re-engineering consumed considerable staff time. While this commitment had a downside in terms of cost, it has had two very positive outcomes: 1) The quality of the product and the degree to which it reflects the needs of the end-users is significantly higher; and 2) The number of internal champions for the CPR is higher as a result of broader participation. Heritage managed a large portion of the cost of staff time by arranging meetings over the lunch hour, with the company providing lunch.

To minimize the generalized loss of productivity upon initial implementation of the CPR, the company developed an extensive training and certification program for using the Heritage Network and the CPR. A technical HelpDesk served as an on-call consultant to users having difficulty with the Network. This led to the creation of a direct care counterpart known as the Clinical Resource Connection, which now serves as a help desk for problems or questions relating to client care.

Finally, Heritage paid a great deal of attention to the potential for significant staff resistance to computerization and minimizing that resistance. Corporate leadership emphasized the coming CPR and the importance of computer literacy well in advance of the introduction of the CPR. A Marketing Team conducted promotional activities to stimulate interest in and support for the development of the network and the CPR. Staff members were encouraged to

volunteer for participation on the cross-functional teams responsible for implementation. Pilot projects tested various elements of the CPR, and the results of these tests were widely communicated within the organization. Most importantly, end-users designed and tested the screens and processes employed by the CPR, and became vocal champions for the project.

Implementation

ICON originally planned the improvements to the information system in four distinct phases. The first phase created an effective electronic mail and group work system--the Heritage Network. The second phase centralized and automated appointment scheduling, combining six different appointment scheduling processes into a single electronic system. The third phase thoroughly reviewed and re-engineered the service delivery process and the functions that support it including the creation of an integrated, paper-based clinical record. This phase overlapped with the final phase of developing the CPR.

The business model employed by Heritage was comprehensive. The issues and tasks Team Jericho dealt with in the CPR project combined the business functions, the number of users by floor and functional area, the computerized processes required to support the model, the ongoing data management issues, and the technology and support functions under-girding the entire system.

Team Jericho had to manage a complex series of events and activities to complete the project. To focus the team's efforts, Jericho employed an extensive project plan containing the tasks, timelines, and resources necessary to implement the CPR. The plan laid out the leadership decisions, clinical decisions, budgets, technology, human resources, training, policies/procedures, product testing, and vendor management issues required by the project.

Training

Heritage devoted a great deal of attention to issues of training as it rolled out both the Heritage Network and the CPR. While it made use of outside training experts, Heritage relied heavily on its own staff to conduct this training.

Since the corporation had committed to making the Heritage Network the primary communication vehicle for Heritage Behavioral Health, all staff had to be trained to use it effectively. As the network was introduced, ICON developed and taught three levels of training. The Bronze, Silver, and Gold level training curricula were designed to take an individual through the rudiments of computer use. This training introduced staff to the Microsoft Word, Lotus Notes, and Lotus Organizer applications available on the network and culminated in the receipt of an internal e-mail address. This achievement was recognized by the Marketing Sub-Team to reward employee initiative and stimulate interest among other staff. By 1996, the achievement of Gold level status became a requirement for successful completion of probation and continued employment.

As the CPR project was rolled out, training became more extensive. Team Jericho developed five distinct curricula for the CPR project: the clinical helpdesk, client registration and scheduling, assessment, progress notation, and treatment planning.

- **Clinical HelpDesk:** The first training was aimed at creating a clinical helpdesk to support the implementation of the CPR. Echo Group (the CPR software vendor) trained the members of the Clinical Helpdesk to use the Clinician's Desktop with the expectation that they would be the primary post-training support system for Clinician's Desktop users.

- **Client Registration/Scheduling:** The second training curriculum addressed staff responsible for client registration and scheduling functions and was designed and taught by the Application Administrators. It prepared all clerical and accounts receivables staff for the automation of the functions of client enrollment, including the gathering of basic demographic and financial information and appointment scheduling.
- **Assessment:** This curriculum addressed the automation of the client assessment process and was designed and taught by the Application Administrators. It targeted staff responsible for completing bio-psycho-social assessments and prepared them for real-time entry of the information gathered during the assessment.
- **Progress Notation:** The fourth training prepared all caregivers for the introduction of the progress notation function. This curriculum, also designed and taught by the Application Administrators, covered the automation of individual and group progress notes.
- **Treatment Planning:** The final training curriculum prepared all caregivers for the introduction of the treatment planning function. It too was designed and taught by Application Administrators.

Operational Management

As the Clinician's Desktop product was rolled out, Team Jericho shifted from a focus on developing a product to managing its use. The team was responsible for assuring the integrity and accuracy of the data generated by the CPR, maintaining the security of the information contained in the CPR, and managing access to it. It also monitored the impact of the CPR on corporate operations and provided project leadership.

Integrity of Information

The CPR designed by the team manages the data in a number of different ways. The client demographic screens have been designed so that client information can be entered as close as possible to where the data is gathered. When a client requests service, the basic demographic information is captured in the CPR and is immediately available for use. The bio-psycho-social assessment is completed while the client is with the clinician, making that information immediately available to other providers downstream. The treatment plan is developed with the client present. Progress notes are completed during a session or within 24 hours.

The CPR has improved the timeliness and accuracy of clinical information. Data is more readily available, higher quality, and often gathered in real-time. The accuracy of the information has been improved with the help of drop-down fields to insure proper use of service and data codes. Since the client is present when the data is entered into the CPR, inaccuracies can be corrected immediately.

Security

The Security sub-team of Jericho has the responsibility for system security. It recommends policies and procedures for action by Team Jericho. Upon approval, Jericho then presents these recommendations to the Leadership Council for adoption; the Board of Directors must also approve any changes in policy. Heritage uses its Incident Reporting System, a Lotus Notes database, to track security violations. The Security Team, in addition to corporate

leadership, reviews any breeches to determine if changes in procedures, processes, or staff training are necessary.

The initial training for confidentiality occurs at the new employee orientation. This training, repeated on an annual basis for all staff, reviews the policies and procedures relating to safeguarding client information. The training emphasizes the importance of accessing only the information a user needs to do his/her job as well as every staff member's responsibilities for protecting confidential information.

Access

The system has been designed to restrict access to different programs and levels within programs on a tiered basis. The first tier requires a "user i.d." issued by the Information Systems Team when they are notified of the hiring of a new staff member and the levels of access that position requires. The second tier assigns a password to the user i.d. allowing the user to log in to the system. The third tier involves a password for the particular application the staff member needs to access.

Within the CPR, staff are put into different classifications of security based on their job descriptions and responsibilities. Each screen—and, at some levels, each field—can be limited to writing, editing or view-only restrictions. The Security Team establishes these classifications of security by reviewing the job responsibilities and the need for the client information.

Impact on Operations

As the CPR was phased-in, the paper system was kept in place until the electronic system was verified as working (see Functionality). At each stage of implementation, caregivers were given the opportunity to go back to the paper process if client care was being affected by the use of the CPR. At that point, staff could record information manually, provided they subsequently entered that data into the CPR. The staff quickly adapted to the CPR and within months, even those who had been dictating assessments and progress notes, began to enter data as it was collected.

To maximize the benefit of the electronic record during client care, caregivers are supported by a real-time help desk process. If a system user needs help with any issue, Heritage has provided one number to call for assistance. If the problem is with equipment or software application, the call is routed to the technical staff for response. If the problem is related to client care, the call is referred to the staff of the Clinical Resource Connection, the panel of clinical experts. To augment the HelpDesk, key people with system expertise have been identified on each floor as more immediate resources. It was clear early in the implementation that the faster staff could get help, the less frustration they experienced. Project leadership has tried to reduce that frustration.

Continued Planning

Team Jericho continues to monitor the effectiveness of the CPR and improve the system, which is now used throughout the organization. The team meets bi-weekly to review the project plan and approve any changes to it. As a cross-functional team of end-users, each meeting is an opportunity for user feedback as team members bring issues from their individual teams for resolution. Satisfaction surveys are also used periodically to measure user satisfaction, particularly after training sessions.

The Information Systems Team monitors the performance of the system. The number of users, system speed, and disk space are routinely tracked. This information has helped Jericho to improve the efficiency of the system and identify alternative configurations to improve speed.

The Equipment sub-team reviews the allocation of computers and needs for additional equipment. The request for additional equipment is then reviewed by Jericho and must ultimately be approved by Leadership.

Team Jericho also monitors staffing levels as they relate to information systems. The team can request that additional staff be assigned to the project to keep up with the increased demands of system expansion. As an example, the rollout of the treatment plan brought with it the need for a full time trainer; Jericho recommended creation of such a position, and the Leadership Council approved it.

Finally, the Team also revises screens and/or data collection processes, as needed. In the organizational structure of Heritage Behavioral Health, the Clinical Council oversees client care operations. New or existing service contractors, internal or external auditing processes, or internal performance improvement initiatives may identify the need for changes. Regardless, all these recommendations for screen or process changes or other potential system problems are referred to Team Jericho.

It should be noted that while the primary record is computer-based, Heritage must also maintain a minimal paper-based record. At this time, Clinician's Desktop, the Echo Group product that replaced Chart Expert, does not have an electronic signature feature. Without this feature, the State of Illinois will not allow paperless records. When the electronic signature feature is available, Heritage will eliminate the paper record within the limits of applicable laws.

Evaluation of Project Management

The development of the CPR is considered a dynamic, unending project. As such, evaluating the management of this project can only be done in terms of its strengths and weaknesses as they appear at the moment. The following sections describe the strengths and weaknesses of the project to date.

Management Strengths

The single biggest contributor to the success of the CPR project was the decision to delegate overall project leadership to a cross-functional team. The team-based decision-making employed by the CPR project overcame a significant weakness at Heritage Behavioral Health—the lack of available expertise and staff resources in information technology—and turned it into a significant strength. As a small behavioral health care provider, Heritage did not have the financial resources to hire an information systems team with expertise in behavioral health service delivery. By developing a cross-functional team and adding the specific expertise of information system staff and Aris, Heritage was able to assemble a group of highly motivated staff members with a number of individual strengths. The use of cross-functional teams resulted in a blending of expertise and motivation that would have been otherwise difficult to achieve.

The cross-functional team also produced a superior product that was more readily accepted by caregivers. The membership of the team (first ICON and then Team Jericho) included caregivers from several different parts of the organization. Together with the members from corporate leadership, the caregivers were able to assure that the final product would reflect their needs, and confirm the corporation's commitment to user-friendliness. Seeing their input incorporated into the redesign of the service delivery processes and the design of the CPR screens enabled the members of the team to become the most avid champions of the product. The more the members spoke of the coming CPR, the more it became something the caregivers anticipated instead of resisted.

Management Weakness

Early in the development of the CPR, Heritage was attempting to use Chart Expert, a product of Health Expert Systems. From the outset, ICON struggled with the implementation of this product. In 1996, ICON began a limited pilot project to test portions of the product. Despite initial successes and favorable early reviews from the staff involved, the project began to fail within a matter of months. ICON did not have close contact with the pilot project staff and was unaware of the level of their dissatisfaction. As the frustration began to surface, a review was conducted in early 1997, resulting in the immediate abandonment of the pilot. At that point, the staff who had used the product were very dissatisfied and ICON was suspicious of the quality of the Chart Expert product. The test revealed that there were a number of flaws in the design and set-up of the project. In retrospect, this pilot was ill conceived, poorly designed and badly managed.

This “failure”, however, marked a significant turning point in the development of the CPR. With the floundering and eventual failure of the pilot test of the electronic clinical record, ICON began doubting the wisdom of pursuing the development of an electronic record in general, specifically doubting the purchase of the Chart Expert product. After a lengthy internal debate and another review of alternative products available, ICON established that they needed to either 1) re-commit to the development of Chart Expert or 2) abandon the project altogether, since no other CPR product had been proven to work to their satisfaction.

Further complicating the situation, the Echo Group had purchased the rights to Chart Expert. ICON had initially reviewed and rejected Echo’s CPR product, Clinician’s Desktop, but was asked by Echo to look at a subsequent release. A demonstration was arranged and ICON was favorably impressed with the revisions that had been made. After negotiations with Echo, the company agreed to exchange the Chart licenses for an equal number of licenses for Clinician’s Desktop. In late 1997, after a summer of soul searching and product evaluation, ICON recommended to the Leadership Council that Heritage recommit to the CPR, using the Echo product instead of Chart Expert.

The pilot project provided lessons in leadership and project management for ICON and contributed greatly to the maturation of the team concept at Heritage. After ICON conducted a lengthy and self-critical post-mortem on the pilot, they accepted responsibility for a flawed design that put into the caregivers’ hands only a portion of the client record for only a portion of their clients. This required the caregivers to use paper-based charts for some clients and electronic charts for others, and sometimes it required a combination of both for one client. As the caregivers in the project began to flounder, a lack of responsiveness by ICON to the needs of the caregivers was revealed. The project began sliding towards failure without interventions to correct the problems. ICON had gotten too distant from the pilot project team. Although the pilot project was deemed a failure, the lessons learned it would prove invaluable for ICON and Team Jericho as they moved ahead with the design and implementation of the Clinician’s Desktop product.

FUNCTIONALITY

Prior to the advent of the Jericho project, a common complaint from caregivers and administrators alike was the poor quality of client records. The gathering of data was time-consuming and redundant and did not serve to improve the delivery of care. The paper

documentation of service delivery was not in the chart fast enough for caregivers and, too often, not in the chart at all. If the documentation was present in the chart, it was often weak, inaccurate, and/or difficult to read. When a client crisis was encountered, basic client information and progress notes from interventions immediately preceding the crisis were rarely accessible to the caregiver. Assessments, treatment plans, and medication records were often missing, outdated, or inaccurate.

The weaknesses of our paper-based records were not only impacting client care, but corporate finances as well. Like other providers of community-based behavioral healthcare, Heritage is subject to a seemingly endless series of routine audits by regulatory or purchasing bodies. These audits often caused the company to repay money received for services that were poorly documented or for which documentation could not be found.

The CPR is based on a commitment of the corporation to make information systems serve the delivery of client care. To carry out the strategic objectives established for the project, corporate leadership had to improve the timeliness, accuracy, value and integrity of the data it gathered while minimizing the intrusion of the data collection methods on client care. The cross-functional teams established to carry out the project had to juxtapose the clinical, administrative, and financial processes as they stood with the capabilities of the new technology. In succession, ICON and Team Jericho attempted to blend the technology with corporate values to streamline and add value to those processes. The team attempted to modify the processes or the hardware/software to achieve the maximum impact for the CPR.

Overview of Critical Processes

Heritage specializes in serving the most serious illnesses and a clientele that tends to be living in extreme poverty. Caregivers for the organization are primarily case managers, clinicians, nurses, or residential care staff working under the direction of a psychiatrist. Frequently, multiple caregivers are involved in carrying out the treatment plan for a single client. Case managers working with the client in the community provide much of the care out of the office.

Administrative practices and financial management are designed to efficiently support client care. These practices include maintaining the databases necessary to satisfy the requirements of organizations contracting for or regulating the services it provides. In addition, Heritage must be able to track staffing patterns, the volume of care provided (by staff, client, and program), and the costs of service delivery (by client and program).

System Re-engineering

Phase three of ICON's developmental plan re-engineered the services delivery processes, including administrative and financial support. The re-engineering began immediately upon execution of the contracts for the purchase of the CPR software. ICON established the Clinical sub-team to flow chart the existing service delivery and support processes. The chart depicted client movement through the services of Heritage from the initial contact to the initiation of treatment and on through to the point of discharge. ICON intended to look at the system as it stood and then to look at how the new technology could improve efficiency and quality. The service delivery and support systems were then modified and/or the CPR customized to enable the CPR to best support delivery of care.

Although flow-charting proved difficult and time-consuming, it forced the organization to address the myriad of different forms, methods, and practices that were features of its decentralized service delivery process. Creating flow charts of service delivery revealed serious

problems with the paper-based record. Different formats for the client record existed for substance abuse, child and adolescent mental health, and adult mental health services. A client involved in multiple services, such as receiving both mental health and substance abuse services, would have two charts. Specific forms also varied, with separate assessment forms and treatment plan formats being used by a number of different programs. Rather than waiting to complete the flow chart before streamlining service delivery, the Leadership Council decided to revise the system as appropriate changes were identified.

In 1998, the Leadership Council determined that, in anticipation of the CPR, the organization must develop consistent paper-based forms that met its varying needs. A task force was created to develop a universal record format. The Clinical sub-team developed a single assessment form that would be adaptable for all admissions. Individual and group progress notes were modified to improve their quality, using concepts that would be incorporated into Clinician's Desktop as prompts. Finally, the sub-team developed a single treatment plan format to be used regardless of the number of services in which a client was enrolled.

After the paper forms were revised, the Application Administrators began to adapt Clinician's Desktop to support the processes for completing those forms. The order and format of the screens were developed and modified with the direct input of the caregivers that would use them. After the preliminary development, the forms were used in test and live environments, and appropriately modified before the automated forms and processes were implemented.

As elements of the CPR were rolled out, administrative functions were reorganized to reflect the increased ability to collect and process information in real-time. With the introduction of the Registration (demographic information) and Scheduling screens, it became possible to reorganize and streamline administrative support of client care. A number of functions that had been "back office" activities were moved to Heritage's central reception area and staff was transferred to match the shifting responsibilities.

Screen Design

The CPR developed by Heritage is based on four software applications: Clinician's Desktop and HSIS (Echo Group), MS Word 97, and InfoScriber (Conundrum, Inc.). These programs automate the functions of client registration, scheduling, assessment, treatment planning, service documentation, and medication management (See Chart 3: Computer-Based Patient Record Modules). In designing the processes, screens, and forms used in the CPR, Team Jericho stayed grounded in the strategic objectives of the project and values of the corporation. While the Application Administrators designed the screens and built the tables, they reflect the re-engineered processes approved by Team Jericho, Clinical Council, and Leadership Council. They also incorporate end-user input gathered through direct input of the team members, test environments, and pilot-testing in live environments. As a result of this input, the Application Administrators changed the screens before general implementation.

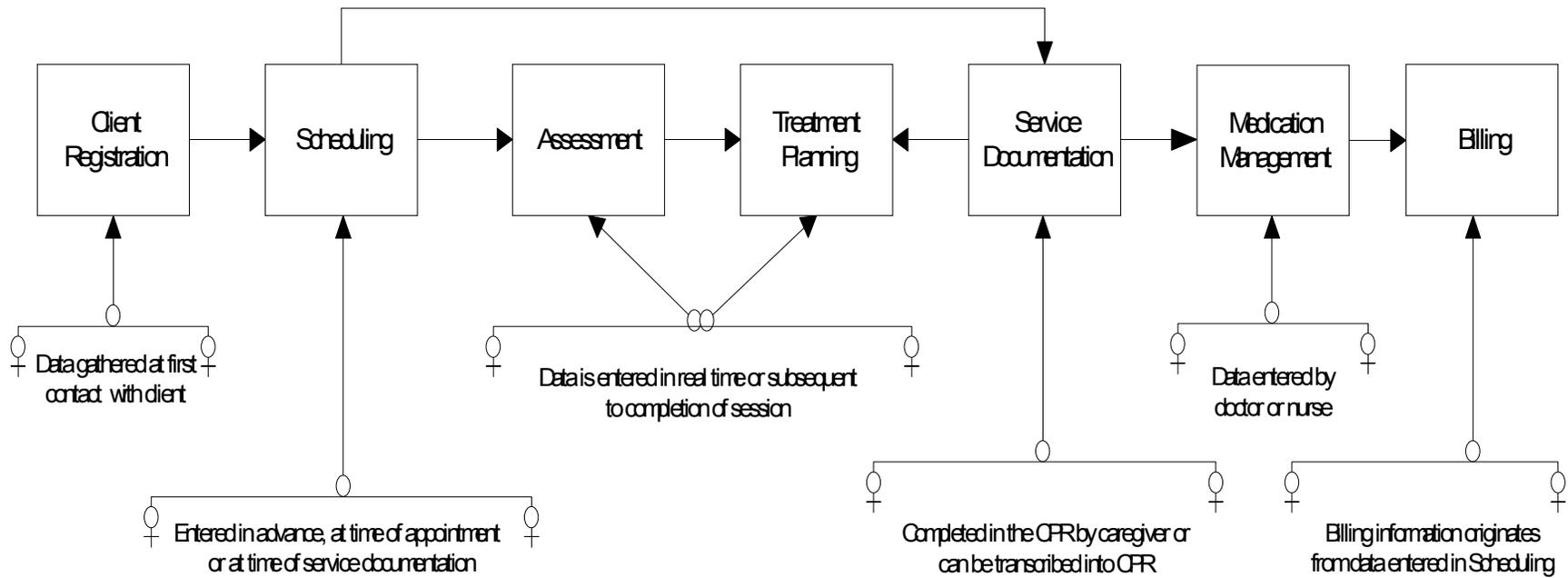
Client Registration

All prospective clients complete a common registration process at their initial contact. This contact may be the initial phone call made to Heritage by the clients or the first interview. All information gathered during this first contact is entered in real-time and then populates appropriate fields on subsequent screens. Certain fields must be completed to capture data necessary to register a client. The staff entering data in the registration module are assisted in proper coding by extensive "pop-up" menus containing coding options.

Scheduling

The scheduling of a client appointment initiates the call for documentation and billing for that service. The design of the system requires that the service be scheduled before it can be processed for billing. Scheduling information is generally entered in real-time but can be entered after the appointment has been made. The latter method is the standard for field-delivered services, such as case management, or unscheduled service delivery, such as crisis intervention. Regardless of the method, scheduling an appointment with a client triggers the Documentation module used to record the service(s) provided. All information entered in the Scheduling module is immediately populated in the appropriate fields on the Documentation screens and transfers to the billing system, eliminating dual entry for billable services.

Chart 3. Heritage Behavioral Health Center Computer-based Patient Record Modules



Client Assessment

Heritage Behavioral Health employs a modified access center model for entry into its services. After registering them, it routes prospective clients to one of four different teams for assessment. Children and adolescents with a possible emotional disorder are assessed by one team and adolescents with a possible substance abuse disorder by another. Adults with a possible emotional disturbance, mental illness, or substance abuse disorder are routed to yet another team, and seniors go to a fourth team.

The Application Administrators designed a single set of assessment screens to cover all three age groups, the differences between substance and mental health assessments, and the incompatible demands of the funding bodies regulating the assessment process. Assessment information is entered in real-time using a common set of screens for all prospective clients. Additional screens collect the specific information related to different clinical or regulatory requirements.

Known as “hidden screens”, these specific screens appear only when appropriate. Certain entries in certain fields on the common assessment screens are linked to the appropriate hidden screen(s). For example, on the Bio-Medical Screen 1 (Chart 4, below), an affirmative answer to the question of whether the client is a child launches a second screen (Chart 5: Bio-Medical Screen 1 - Child) to capture additional child-specific information. Affirmative answers to certain questions on the Mental Illness and Substance Abuse History Screen (marked by asterisks on Chart 6, below) trigger screens seeking more detailed substance abuse history information. After the hidden screens have been completed, the caregiver is returned to the common screens. While the assessment process is the same for every prospective client, the hidden screens enable the caregiver to gather additional information specific to the different clinical or regulatory requirements for various age groups or types of presenting problems.

The assessment screens culminate in the diagnosis, tracking through the client’s course of treatment. These screens allow the treatment team to review the diagnosis provided by qualified mental health professional or physician and track the history of the client’s diagnoses, including “rule out” diagnoses. Information from these screens is passed to the necessary reports or subsequent screens in the CPR.

Chart 4: Bio-Medical Screen 1

Clinician's Desktop v3.44
 File Edit View Reports Utilities Tools Window Help

BioMedical Screen 1

Client Name: _____ Physician's Name: _____
 How would you describe your health? [dropdown] Date of last physical exam: _____
 Describe any medical problems or concerns: [text area] Describe any physical or mental impairments: [text area]
 Do you have any allergies? [checkbox] *** Date of last dental exam: _____ By whom? [text area]
 How many hours of sleep in 24 hrs? [text area] Do you feel rested upon waking? [checkbox] Height: [text area] Weight: [text area]
 Describe any major surgeries: [text area] Describe any overnight hospitalizations: [text area]
 Is client a female? [checkbox] *** Is client a child? [checkbox] *** Does client have history of chronic illness? [checkbox] ***
 Do you currently take medication? [checkbox]
 Are you currently or have you recently experienced any pain? [checkbox] ***

Summary

Chart 5: Bio-Medical Screen 1 – Child

Clinician's Desktop v3.44
 File Edit View Reports Utilities Tools Window Help

Child

Client Name: _____
 Are immunizations up to date? [checkbox]
 Were any medications taken during pregnancy? [text area]
 Did mother smoke during pregnancy? [checkbox]
 Did mother use alcohol or drugs during pregnancy? [checkbox]
 Duration of pregnancy? [text area] Was labor? [checkbox]
 Were there any complications during delivery? [checkbox]
 When first crawled? [text area] When first spoke? [text area]
 When first walked? [text area] Toilet trained by age 3? [text area] Any bed wetting? [checkbox]
 Are any of the following a source of parental conflict:
 Peer Group? [checkbox] Daily Activities? [checkbox] Explain: [text area]
 School? [checkbox] Other? [checkbox]
 Curfew? [checkbox]

Summary

Chart 6: Mental Illness and Substance Abuse History Screen

Clinician's Desktop v3.44

File Edit View Reports Utilities Tools Window Help

MI and SA History

MI and SA History

Client Name:

Have/Has anyone in your immediate family been treated for a mental illness?

Have/Has anyone in your extended family been treated for a mental illness?

Have you ever been treated for a mental illness?

What do you know about your mental health issues?

Anyone in your immediate family ever have/had a problem with alcohol or drugs?

Anyone in your extended family ever have/had a problem with alcohol or drugs?

Have you ever had a problem with alcohol or drugs?

Have any family members received treatment for alcohol or drugs?

Are any family members in recovery?

Have you ever had a DUI?

When was the last time you used alcohol or drugs? ***

Does client need to continue with SA assessment? ***

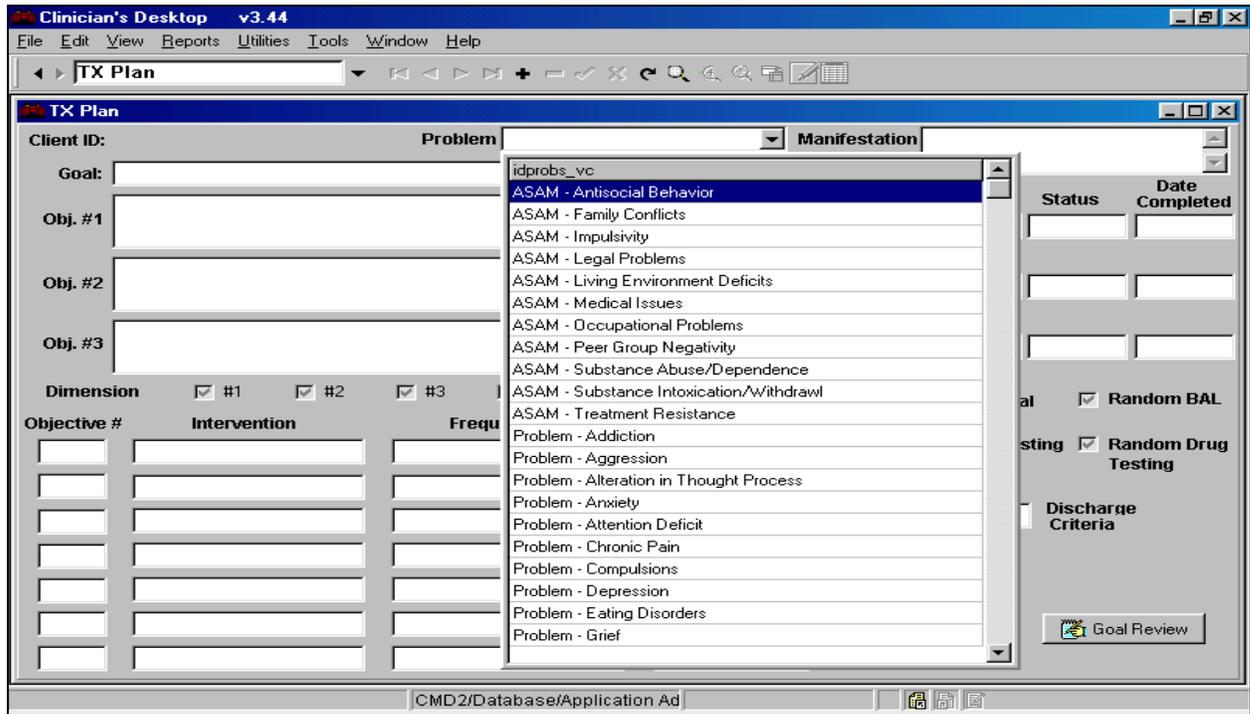
Summary

CMD2/Database/Application Ad

Treatment Planning

The Individual Treatment Plan (ITP) directs all treatment provided to an individual client. The Heritage CPR features a single set of treatment planning screens regardless of age or presenting problem, following the integrated treatment planning process developed in the re-engineering phase by the Clinical Council. Like the assessment screens to which they are linked, the Treatment Plan screens incorporate a series of “pop-up” menus to assist staff in developing effective goals and interventions relating to a specific problem presented by a client. The first screen tracks the start, expiration, and next review dates of the Master ITP. The second screen allows the caregiver to enter a presenting problem, the behavioral manifestations of that problem, a goal statement and objectives for service delivery (see Chart 7: Problem Goal Screen). A section on this screen prompts staff to enter interventions and timeframes relative to each of the objectives. The initial set of problem areas is transferred by the system as a result of the assessment. Caregivers can enter multiple presenting problems for a client, adding to those identified in the assessment, with the CPR linking them to form an integrated ITP. The third screen launches from the problem screen, incorporating the discharge criteria the client must meet to complete services or move to a lower level of care. A report is then generated for the staff, client, and physician to sign. The report is filed in the paper-based record, where it serves as the ITP for purposes of external review.

Chart 7: Problem Goal Screen



Service Documentation

Team Jericho worked with Clinical Council to develop screens or templates that would enable staff to efficiently and easily document services provided to clients. At the same time, they intended to improve the accuracy and quality of that documentation. From the Scheduling screens, caregivers can enter the Documentation module. Selecting the Progress Note prompt brings a series of questions that guide the caregiver through the documentation process. The Clinical Council framed the questions to create documentation that is consistent with best clinical practices and regulatory requirements. Once the Individual Treatment Plan has been completed, it is immediately available to caregivers as they document any service. The ITP employs pre-defined text messages (“tokens”) to prompt the caregiver to identify the particular goal of the session being documented (See Chart 8, below).

Chart 8: ITP Token Screen

Note Editor

WHAT PROBLEM(S) IS/ARE BEING ADDRESSED IN THIS CONTACT (IS THIS A PROBLEM ON THE TX PLAN? IF NOT, AND YOU ANTICIPATE IT CONTINUING, YOU MUST AMEND THE TX PLAN.)

IDENTIFY THE INTERVENTION/SERVICE YOU PROVIDED AND DESCRIBE WHAT YOU DID DURING THIS CONTACT.

DESCRIBE HOW THE CLIENT OR OTHER RESPONDED TO YOUR INTERVENTION AND/OR WHAT WAS REPORTED DURING THIS CONTACT.

WHAT PROGRESS HAS THE CLIENT MADE TOWARD HIS/HER GOALS/OBJECTIVES ADDRESSED TODAY? (DETERIORATION, SIGNIFICANT DETERIORATION, MAINTAINING CURRENT LEVEL, IMPROVEMENT, SIGNIFICANT IMPROVEMENT, NOT APPLICABLE)

INDICATE THE PLAN FOR THE NEXT SERVICE/INTERVENTION, I.E., WHAT YOU AND THE CLIENT AGREED UPON.

Medication Management

Heritage Behavioral Health has incorporated InfoScriber, a web-based technology, to manage information related to medications. Using InfoScriber, multiple medications for a patient can be added, changed, discontinued, or re-ordered in one transaction. The software enables automated electronic prescribing with formulary checking, posting of drug interactions, drug allergy screening, laboratory scheduling and administrative tracking. Medication history is readily available and can be sorted by a variety of variables including medication type or chronological date. The system also offers Heritage information about the prescribing habits of its physicians and the ability to compare those habits to national prescribing trends.

In partnership with InfoScriber Corporation, Heritage has set up data synchronization that enables client demographic information that resides in the CPR to also reside in the InfoScriber database. Client information is captured once, through the CPR, and made available to staff using the InfoScriber technology.

All Heritage physicians use the InfoScriber product to track prescriptions. Three of the physicians directly enter the prescriptions for most of their clients. A nurse enters prescription information for the remainder of the clients and for all of the scripts of the fourth physician, a limited part-time contractor. Once the information is entered, InfoScriber prints the script. The information contained on the script is stored and available to Heritage in specific or aggregate form. The database also enables aggregate comparisons within the organization and to practices across the country.

Decision Support Features

The practice of behavioral healthcare differs significantly from the practice of physical healthcare. The diagnosis and treatment of mental health and substance abuse problems are far less precise than for physical conditions. Consequently, best practice standards are not as specific as they are for the treatment of physical conditions, making clinical decision support more difficult to provide. However, Heritage has succeeded in designing such features into its CPR. Customized by Team Jericho, the Heritage CPR has a number of built-in clinical decision support features that assist caregivers during assessments, treatment planning, services documentation, and medication management.

Diagnostic Support

The Assessment screens of the CPR have been designed with a series of rules to help clinicians arrive at a more accurate diagnosis by guiding them through the data collection process. More than just data entry, the automated assessment process guides the caregivers through numerous clinical tools, if-then scenarios, and user prompts, while allowing caregivers to use their own interviewing styles. Hidden screens appear if a client responds appropriately to trigger questions. For example, if a prospective client responds positively to the question of whether he/she has ever been abused, an additional screen is launched requiring caregivers to collect information related to the abuse.

The Assessment also contains built-in criteria to help caregivers assess the risk of suicide, homicide, and health issues. All clients are screened for homicidal or suicidal tendencies. If an affirmative answer is provided, the caregiver is taken to a hidden screen to assess the potential for either act. For prospective clients at moderate or high risk of suicide, the screen prompts the caregiver to contact the psychiatrist immediately for further evaluation. If the risk is for homicide, the caregiver is prompted to consult with the psychiatrist and law enforcement and to determine if there is a duty to warn (see Chart 9: Risk Assessment Screen).

All clients also receive an assessment of their health and nutritional status. The Assessment contains a data collection screen (see Chart 10: Bio-Medical Screen 2) to gather data on a variety of health issues such as diet, weight fluctuation, tuberculosis, or sexually transmitted diseases. The screen links affirmative answers to certain questions (noted with asterisks) to a referral to a nutritionist, calling for the caregiver to enter the name of the nutritionist to whom the client has been referred. The psychiatrist reviews infectious disease information.

Finally, the assessment contains hidden substance abuse screens. When triggered by affirmative answers, these help the caregiver determine if the prospective client's symptoms warrant a diagnosis of abuse or dependence.

Chart 9: Risk Assessment Screen

Client Name: _____ **Date:** _____ **Staff:** _____ **Type:** _____
Suicide Risk: _____ **Homicide Risk:** _____

<p>HIGH RISK</p> <p>Recent suicide/homicide attempt (past 7 days) regardless of the potential lethality of the attempt and current, active suicidal/homicidal ideation in the past 48 hours.</p>	<p>MODERATE RISK</p> <p>Current evidence of suicidal/homicidal ideation or preoccupation, including talking about death and threatening to kill oneself, but no recent suicide/homicide attempt (past 7 days).</p>	<p>LOW RISK</p> <p>(a) No current suicidal/homicidal ideation, (b) no recent suicide/homicide attempts (past 30 days), and (c) a known history of either a suicide/homicide attempt or ideation.</p>	<p>NO RISK</p> <p>No known history of either suicide/homicide attempts or ideation.</p>
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****POLICE MUST BE CALLED IMMEDIATELY IF MODERATE OR HIGH RISK HOMICIDE****
****PSYCHIATRIST MUST BE CONSULTED IMMEDIATELY IF MODERATE OR HIGH RISK****

ADDITIONAL INFORMATION IF SUICIDE/HOMICIDE RISK IS MODERATE OR HIGH

Plan _____	Illness _____	Alone _____
Lethality _____	Depression _____	Loss _____
Availability _____	Previous Attempts _____	Substance Abuse _____

Psychiatrist Contacted _____ **Time Contacted** _____
Psychiatrist Orders _____
Is there a Duty to Warn? _____ **If yes, who contacted** _____ **Phone #** () - _____

Date: _____

Disposition

CMD2/Database/Application Ad

Chart 10: Bio-Medical Screen 2

Client Name: _____

NUTRITIONAL SCREENING: Do you eat _____

Breakfast? _____	Lunch? _____	Dinner? _____	Snacks? _____	Any unintentional wgt. gain/loss + 10 lbs in past 30 days? _____
Describe recent weight loss or gain _____				Is client pregnant or lactating? _____
Describe your current diet plan _____				Is client difficult diabetic? _____
Describe any food restrictions: _____				Is referral made to dietitian? _____
Describe amount of caffeinated beverage intake: _____				(referral needed if 'yes' to any above)
On any MAO Inhibitor? _____				

TB CHECKLIST: Do you have any of the following symptoms?

Sputum producing cough? _____	Coughing up blood? _____	Loss of appetite? _____
Received TB medications? _____	Fever? _____	Night Sweats? _____

Explain: _____

STD RISK ASSESSMENT: Do you have any of the following symptoms?

Intercourse without barrier protection? _____	Had a transfusion? _____	Had yellow jaundice/hepatitis? _____
Use sex to earn money or drugs? _____	Share needles/works? _____	Been sexually assaulted? _____

Explain: _____

Summary

cvc1/Database/Application Ad

Treatment Planning Support

The CPR has proved to be an invaluable tool in the treatment planning process. Based on the assessment, caregivers must develop an integrated ITP that is consistent with best practices and compliant with applicable rules and regulations. They must take the presenting problem areas identified in the assessment and develop a series of relevant goals and interventions to guide subsequent treatment, wording them in a precise manner and indicating any problem area that will not be addressed.

Using a series of drop-down menus sorted by presenting problem area, the system guides caregivers in designing these goals and interventions. This enables staff to quickly build a treatment plan that is precisely tailored to each client's specific situation, using language acceptable to the appropriate regulatory authorities.

This direct linkage of the assessment to the treatment plan development enhances the potential for broader implementation of best practice standards. The identification of particular presenting problems can be linked to particular interventions, according to the organization's practice standards. Heritage's clinical helpdesk, the Clinical Resource Connection, has begun to explore establishing those standards as the CPR has been rolled out. Once the standards are established, Heritage will be able to link them to the pre-defined content of the treatment planning module.

Based on feedback it received from team members and Clinical Council, Team Jericho attempted to help caregivers with the cumbersome process of preparing the initial treatment plan and subsequent reviews and updates of that plan. Simply tracking the due dates for updating treatment plans was a difficult task for caregivers responsible for large caseloads. In particular, substance abuse providers, subject to the criteria of the American Society of Addictions Medicine Patient Placement Criteria, must frequently review a client's treatment plan. In all cases, the system brings up the most current treatment plan and prompts staff to re-affirm or modify the course of treatment.

The CPR also helps staff organize medication services, enabling staff to easily track the next scheduled medication check-up, which ensures medicated clients see the doctor within the correct timeframes. Using the CPR, the caregiver can easily check due dates for pending ITP reviews and the next scheduled doctor's appointment for any specific client. The system also routinely prints a caseload summary report with critical information for each client assigned to a caregiver. The actual completion of the review is simplified by pre-populating appropriate fields and having immediate access to previous treatment and services delivered.

Service Documentation Support

The heavy use of rules in the development of the CPR enables the system to check documentation before it passes to the billing function. For example, rules assure that services can only be recorded by properly credentialed staff, that start and stop times do not overlap, and that the documentation of the service is finished before a service can be billed. Reports are generated for caregivers to show any service for which documentation is missing or incomplete.

Medication Management Support

The InfoScriber component provides Heritage physicians and nursing staff with a variety of supportive information. Automated electronic prescription enables immediate formulary checking, identification of possible drug interactions, drug allergy screening, laboratory scheduling, and administrative tracking. System prompts alert physicians to risks outside acceptable parameters (See Charts 11a and 11b: Medication Alert Screens showing test environment information on fictitious clients). The system provides on-line reports showing expiring medication orders and tracking refills. Embedded intelligence collects useful data on prescribing patterns, side effects, combination therapies, and off-label uses of medications. Reports are specifically designed for central nervous system disorders with medication histories and outcomes. A feature that memorizes prescribing patterns enables Heritage physicians, nursing staff, and/or corporate leadership to look at common medication practices with any particular diagnostic group. This data can be sorted by a single physician, by the collective Psychiatric Services Team, or across the aggregate national InfoScriber database.

Chart 11a: Medication Alert Screen

Medication Alerts - Microsoft Internet Explorer

JANE THOMPSON , FEMALE, 62, 03/03/1939
Schizoaffective Disorder

Medical Alerts for JANE THOMPSON

Drug to Drug/Food Interactions

haloperidol ziprasidone: MAJOR Ziprasidone can cause dose-related prolongation of the QT interval. While clinical data are lacking, the coadministration of ziprasidone and other agents that can prolong the QT interval may result in elevated risk of torsade de pointes because of potentially additive arrhythmogenic effects. Ziprasidone should not be used concurrently with other medications that can prolong the QT interval.

fluphenazine ziprasidone: MAJOR Ziprasidone can cause dose-related prolongation of the QT interval. While clinical data are lacking, the coadministration of ziprasidone and other agents that can prolong the QT interval may result in elevated risk of torsade de pointes because of potentially additive arrhythmogenic effects. Ziprasidone should not be used concurrently with other medications that can prolong the QT interval.

clozapine haloperidol: MINOR CNS-depressant and/or respiratory-depressant effects may be additively or synergistically increased in patients taking multiple drugs that cause these effects.

clozapine fluphenazine: MINOR CNS-depressant and/or respiratory-depressant effects may be additively or synergistically increased in patients taking multiple drugs that cause these effects.

clozapine divalproex sodium: MINOR Several reports have suggested that valproate may slightly increase serum

Print Close

Chart 11b: Medication Alert Screen

Order Confirmation

HEATHER CHRISTINE SMITH MR# 1, FEMALE, 19, 03/04/1982
Bipolar I Disorder, Most Recent Episode Manic, M...

Prescriber:

Pharmacy:

REORDER Depakote - 500 mg, ECT, PO (10)ea QAM

Start Date: 04/24/2001 UNITS: 28 days 0 refills DAW End Date: 5/22/2001
 Leaflet

Virtual Pharmacist Quick Check

Major Drug To Drug/Food Interactions !

No Allergy Reactions

Pregnancy/Lactation Alerts !

Prescription Output Options: Print: FAX: None:

Print Output Options: Chart: Active: Hist.: Note:

Administrative Support

The move to the CPR opened up a number of improvements in the capacity of Heritage Behavioral Health to support the process of service delivery. These administrative improvements were clearly visible in the way the corporation was able to help caregivers manage caseloads as well as the functions of billing and statistical reporting, quality improvement and utilization management, and corporate compliance.

Support for Caregivers

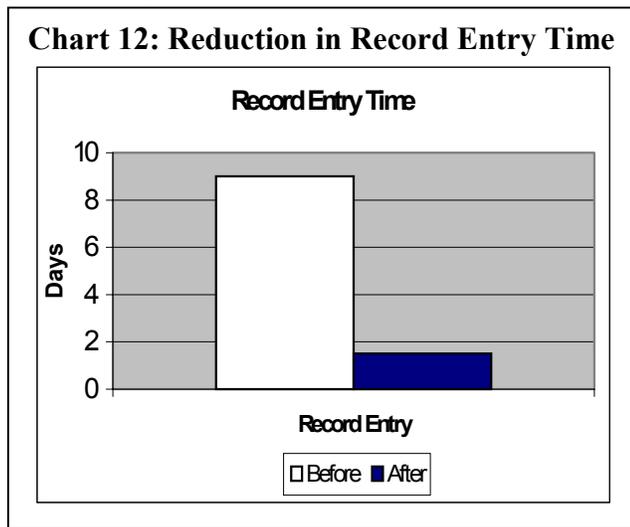
Caregivers had little support for caseload management before the CPR. The simple act of providing accurate and timely information about the clients assigned to a caregiver had been problematic under the old system. The inherent weaknesses of the system limited the information available to caregivers to a very basic level. The maintenance of multiple databases and the duplication of data-entry effort often resulted in inaccurate data. Clients often had to repeat information several times, occasionally providing inconsistent information. If a client received services at multiple sites (for example, a group home resident also involved in psychosocial rehabilitation services), multiple records were maintained and one site would not always have ready access to the records of the other.

With the CPR, each caregiver can view his or her caseload instantly upon accessing Clinician's Desktop. Caregivers now receive accurate printed caseload summaries that contain not only essential information for those clients assigned to them, but a variety of other important data as well. They receive aggregate reports showing the

last time a client was seen by a physician, any necessary appointments that have been missed, or the last treatment plan review date. When a support staff member changes the diagnosis, primary caregiver, or level of care, this triggers notification of the current or new primary caregiver. Caregivers have access to the status of their clients and can easily track the assigned level of care and the hours of service provided or scheduled to assure that treatment is adequate for that level of care. Patient demographic screens track the referral source so the caregivers can communicate the patient's status, treatment recommendations, and progress. Reminder letters for physician appointments or for failed appointments are also routinely generated from the system.

Billing and Statistical Reporting

Under the previous system, all data entry was completed as a back-office function based on paper forms completed by the service provider. Heritage has to maintain multiple databases and be capable of reporting on service activity to multiple funding bodies that are not compatible with each other. With the CPR, the billing and reporting of client care is directly driven by the documentation of the services by the caregivers and has improved in accuracy and integrity. Data entry begins with the scheduling of the encounter and ends when the caregiver enters the appropriate service note for that encounter.



Heritage was able to reduce dramatically the inefficiencies and redundancies in its data processing system such as the use of dictation by non-physician caregivers. The new system reduced the time between providing the service and documenting that service in the patient record from nine days to one day. Chart 12, at right, shows the reduction in the average length of time taken to note a service in the client's record.

The CPR also has improved the accuracy and integrity of the service encounters billed and/or reported. A feature in the Scheduling module disallows the entry of a service for which the caregiver is not properly credentialed. Further, the system will not allow a service to be billed or reported until documentation is complete. The system will track the status of documentation and report missing or incomplete documentation for the appropriate team leaders and caregivers. Based on these reports, Accounts Receivable staff check the encounters to be billed prior to processing to show the presence or absence of all required data and coordination of start/stop times. These features, and the prompts, guides, and decision support features referred to above, have dramatically reduced audit findings of ineligible services and errors in state reporting. Accounts Receivable staff is spending less time correcting data, allowing the redirection of staff to other functions, such as central reception, where client registration now occurs.

One more significant improvement is expected within the fiscal year. Heritage has contracted with Echo Group to write connecting software to allow data transfers between the CPR and the database maintained by the Office of Alcoholism and Substance Abuse. This link will eliminate significant double entry for the affected data.

Quality Improvement/Utilization Review

The CPR has brought with it a significant increase in the capacity for quality management and utilization review. Leaders now have easy, immediate access to the caregivers' documentation, which allows them to review service notes. They can easily relate those notes to the specific client's ITP to ensure the quality of the documentation. At the same time, the leaders are able to look at the substance of the note and evaluate the appropriateness of the billing code chosen for it. Consequently, Heritage has been able to shift its Utilization Review function from looking at the absence or presence of documentation to checking the appropriateness of the services documented.

Corporate Compliance

Finally, the development of the CPR has improved the corporate compliance function at Heritage. The rules and checking procedures built into the system reduce the billing of non-compliant service encounters. On a daily basis, each caregiver receives individual reports enabling them to review and approve the billing to be generated from the services they provided on that day. The aggregate reporting capabilities of the system provide corporate leaders with more quality information for their operational oversight.

Accessibility

In undertaking the CPR project, Heritage decided that each caregiver should have easy access to a workstation capable of efficiently running the CPR program. The nature of Heritage's service operations required Team Jericho to supply access to the Clinician's Desktop from the main headquarters building and from remote sites as well as controlling access within the Desktop. From the main site, Heritage has continued to add workstations tied into the network that forms the platform for the CPR. A total of 140 stations now exist and more are being added each year. Most caregivers have access to a workstation within their work area, if not in their office. Heritage found that its case managers needed interruption-free access and created two computer labs, one of which doubles as the computer training room. For the remote sites and off-site access, Heritage has developed dial-up and direct access capability. Using Citrix software and high-speed T-1 and DSL lines, Heritage has made off-site access readily available. However, the organization must still solve the problem of providing easy access for its case management staff, who provide most of their service in the field. Team Jericho continues to explore options in this area.

Within the CPR, staff are given access as they are trained. Access is limited to need-to-know information by setting up security levels within Clinician's Desktop from the level of the individual case record down to the level of a specific field. The levels of security were designed by a cross-functional sub-group of Team Jericho.

Limiting access remains an ongoing concern for Heritage and Team Jericho. Moving to a computer-based patient record is only practical if all staff needing access to

that record have easy access to the information. On the other hand, for the CPR to reach its maximum utility in an organization, the system must assure clients that access is limited to only the information each staff member needs. Assuring ease of access to field-based staff remains difficult. Controlling access within that record to only selected fields remains an equally difficult challenge.

Other Operational and Strategic Activities

The growing sophistication of the staff of Heritage in the use of computer technology has allowed Heritage to increase access to knowledge. The capabilities of the system have facilitated compliance with Healthcare Information Portability and Accessibility Act (HIPAA) regulations.

Knowledge Access

As a natural next step in the use of Heritage Network's secure connection to the Internet, Heritage began providing electronic "best practice" information through e-mail broadcasts of an innovative bulletin published by Conundrum Communications. This bulletin, sent three times a week to all staff, provides them with just-in-time information about trends and events in the healthcare industry and up-to-date information about clinical and administrative best practices. Expanding this knowledge source, Heritage is purchasing online training and continuing education from the same vendor. As staff use the CPR to make treatment decisions, they can access current industry literature via Heritage's secure online learning portal, earning continuing education credits at the same time. This online training will also support training on a variety of regulatory issues. Courses are available on topics such as safety, infection control, blood borne pathogens, basic first aid and employment law issues. The learning management capability will help Heritage track staff competency and training deficiencies.

Heritage Behavioral Health is also linked to two outcomes-oriented research databases: InfoScriber and Access Measurement Systems. Each of these systems provides client-specific information to measure and improve the quality of care. Both also offer aggregate reporting and access to national databases for comparative purposes.

Regulation

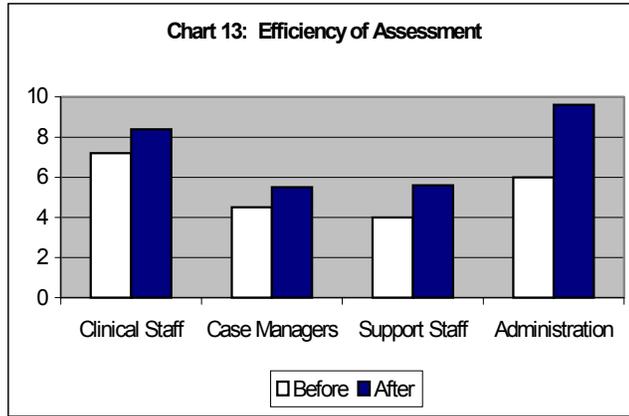
In the process of setting and implementing privacy and confidentiality policy, Heritage has included a plan for Healthcare Information Portability and Accessibility Act (HIPAA) compliance. This plan includes updating policies and procedures, monitoring the technology developments of its vendors, and developing training programs around the requirements of HIPAA. Heritage will use the online training infrastructure to deliver the required HIPAA training. Employees and third parties requiring access to confidential patient data will take this training online as the training application captures information about their understanding of privacy and confidentiality practices.

User Satisfaction, Productivity, and Effectiveness

Staff resistance to the introduction of the CPR has been low and satisfaction with it has been high. As the first group of users went online with the CPR, their reports about its ease of use and value began to spread. Team Jericho began to schedule training sessions to bring new users online by seeking volunteers from designated staff teams. Training

sessions filled rapidly as staff were eager to gain access to the new system. When training for one stage is complete, graduates frequently want to move rapidly to subsequent modules.

Users have consistently reported their approval of the product. In a survey conducted by Team Jericho, staff were asked to rate the efficiency of the assessment process before and after the



introduction of the CPR. Chart 13 shows that case managers reported a 22% increase in the efficiency of the CPR assessment process over the paper-based process. Clinical staff reported a 17% increase with the CPR process. Administrative and support staff were even stronger in their support, with the former rating the CPR assessment 60% more efficient and the latter rating it 40% more efficient.

TECHNOLOGY

Scope and Design of CPR System

System Description

The Echo Group products (Clinician’s Desktop and HSIS) are housed on a server running Microsoft Windows NT 4.0 and Microsoft SQL Server 7. The servers’ hardware consists of 1GB RAM, 18GB hard disk mirrored storage, and a 24GB DAT tape backup. The server also has internal redundant power supplies and is connected to an external battery backup. Lotus Notes is housed on a server that also functions as our web/intranet server. This server runs Microsoft Windows NT 4.0, Lotus Domino Server 4.51, and Microsoft Proxy Server 2.0 firewall software. The servers’ hardware consists of 128MB RAM, 9GB hard disk storage, and a 8GB DAT tape backup. Citrix Metaframe 1.8 is used to connect off-site locations to the Heritage Network. It is housed on a server running Microsoft Windows NT Terminal Server 4.0. The server’s hardware consists of 640MB RAM, 9GB hard disk mirrored storage, and a 24GB DAT tape backup. All other Heritage software, including payables, human resources, users home folders, and shared documents and spreadsheets, is housed on another server running Microsoft Windows NT 4.0. The servers’ hardware consists of 256MB RAM, 18GB hard disk mirrored storage, and a 24GB DAT tape backup. All four servers are protected from viruses by utilizing McAfee NetScan software and all desktop PCs have McAfee VirusScan software installed.

System Architecture

With the purchase and renovation of a new facility, Heritage Behavioral Health had great flexibility in designing the connectivity for the Heritage Network. With Ethernet being

the industry standard in networking protocols, the Information Systems (IS) Team decided on an installation that would allow the organization to utilize the current Ethernet technology but also expand as that technology grows. Each floor has a series of hubs and switches that provide 100Mb/sec connections to the Heritage Network. Fiber optic cable was installed, running from each floor back to the main computer room, allowing a full duplex 100Mb/sec connection to each floor. Our Internet connection utilizes a direct data line to our Internet service provider and provides us with 512K/sec bandwidth.

Prior to the development of the Heritage Network, each department housed and maintained its own data, and information was stored on local PCs and floppy disks. Now, data is stored centrally on servers within the Heritage Network. Each user is given an area on the server and saves mission-critical information (planning documents, protocols, reports, etc.) there. Payables, receivables, human resources, the CPR, and all other mission critical data are stored on servers and backed up daily to ensure recoverability.

Data Model

Given the cumbersome nature of reporting to the State of Illinois, Heritage challenged itself to develop a system with a single, efficient point of data entry and accurate, timely reporting of that data.

ICON and Team Jericho spent a great deal of time defining the data elements that were reported to all external payers. The culmination of that work was a table displaying and describing all of the data elements required by Heritage contractors and regulating bodies. In turn, the team designed a uniform internal coding system to translate Heritage activity to the proper code for each payer or regulating body. With the integration of the CPR and the billing system, Heritage is able to verify the validity of code combinations at the time the data is entered. Once verified, that information is passed to the billing system, and codes are translated and sent to the appropriate payer for each service.

Transferability

One of the fundamental principles in the CPR project was to retain the Heritage way of doing business, by adapting the software package selected. This proved to be a huge challenge. Heritage had spent considerable time and effort working with Chart Expert, but needed to decide whether to find new software or leverage the invested time. Eventually, Heritage decided on the Echo Group's Clinician's Desktop (CDT) product because of the flexibility in its setup and design and the rule structure that could be built into it. ICON believed that this product allowed Heritage the best chance to design its own screens, instill its own rules into those screens, determine the flow in which the information was collected, design its own reports, and integrate those reports into the CPR.

Once the Team committed to the CDT product, they began a nearly two-year process of layout, design, training, and rollout of Clinician's Desktop as the CPR. It sought the input of staff throughout the organization. Clinical, billing, clerical, leadership, and information systems staff offered suggestions for screen design, report development, included data elements, and "wish list" items. Once that process was done,

the Application Administrators began the software design of the CPR, taking full advantage of the custom-design features built into CDT.

It quickly became clear that Echo had not worked with many customers who wanted to exercise the flexibility of its product as extensively as Heritage did. The challenge was to balance the software revisions necessary to meet Heritage's specific needs with Echo's for a usable product it could support. Echo made several software revisions, and Heritage made many design changes. The end-product shows the value of the effort spent; the Echo-Heritage partnership produced a superior product for community-based behavioral healthcare. It also identified several areas in need of further development. Heritage continues to challenge themselves and Echo to further improve the CPR.

Security/Confidentiality and HIPAA Compliance

Security, client confidentiality, staff confidentiality, and data integrity have been primary areas of focus in the development and implementation of the Heritage CPR. Too often regulatory bodies, caregivers, and clients assume that data is less secure in an automated system than in a paper-based system. As the CPR project evolved, corporate leadership became convinced that this system enabled greater, not lesser, security for the data it stored. Providing access through an automated system allows both restricted access to charts on a need-to-know basis and restricted access to certain areas within the chart (i.e. assessment, diagnosis information, and treatment plan information). The CPR does away with problems such as records not being returned to the medical records room, charts taken off-site to other agency locations, and client data left unsecured throughout agency locations. It facilitates tracking the data contained and those who have accessed that data.

Each Heritage staff member must sign a confidentiality agreement assuring he or she will access confidential information only on a "need to know" basis. The statement further assures that the staff member will not disclose network or CPR passwords and will abide by all state regulations on client confidentiality and care. Security levels have been defined within the CPR, which allow staff access only to the areas within the chart needed to perform job duties. For example, a clerical staff member would have access to client demographic information and scheduling but not to assessments or treatment plans.

Data Quality and Integrity

Heritage determined that it could improve the accuracy of the data collected if it could reduce the number of times that data was entered or otherwise touched. Under the new system, clerical or clinical staff record a client encounter in advance, at the time of the encounter, or subsequent to the encounter. The caregiver then selects the service activity code and documents the delivery of the service. This action triggers the billing process and verifies that documentation is present. As noted above, Echo's CPR and billing/receivables products verify service delivery and billing codes prior to those services being billed. Finally, the system eliminates the need for an additional staff to do data entry for services and reduces the need for staff to clean up data errors.

System Integrity and Disaster Recovery

The CPR data is protected from loss in a number of ways. The server on which the CPR is housed has a tape backup that is configured to run a full backup every night during a period of least system activity. The tapes used in the backup process are taken off-site daily to ensure recoverability should the main facility be destroyed. There is also a backup created within the database software itself. A full database backup is done daily during a period of low system activity and then incremental backups are performed every hour. The physical hardware itself is protected by an on-site warranty with a four-hour response time from the vendor, which means that our system must be repaired or replaced and in working order within four hours. If the entire facility were destroyed and the decision made that we could continue to do business at another location, the recovery time would be lengthened. In that case, recovery would take the time necessary to acquire replacement hardware and restore backup information on that system.

Standards

As noted above, governmental agencies in the State of Illinois have incompatible data systems, requiring three separate data sets for the recording and billing of any Medicaid-reimbursable mental health or substance abuse service, one for OMH, one for OASA and one for the Department of Public Aid. Very early in the CPR process, ICON saw the necessity of being able to collect data one time, at the point of service delivery, and report that data to multiple sources. Meeting that challenge required taking the time to build a single integrated set of data elements. After going through this time-consuming process, the team was able to customize the CPR to use a single set of data elements and translate those internal codes into the codes used by each funding sources. Given the nature of the corporation's services, it was necessary to extend this functionality beyond the main facility to enable off-site locations to access the CPR. As a result, Heritage has consistent data collection throughout the organization.

Performance

The performance of a CPR is crucial to its success. If staff is not able to access the system when they need it, especially those using the system in face-to-face contact with clients, it is of no value. With no perceived value, staff will bypass the system. Team Jericho addressed this problem in two ways. With the original implementation of the Echo CPR product, considerable deficiencies in software response time were evident. Working in conjunction with Echo, the IS Team was able to identify the issues around system performance and modify both the software product and the internal networking hardware.

The second way Team Jericho addressed performance issues was in its approach to the purchase and upgrade of hardware. After researching several options for hardware purchase, Jericho recommended leasing the hardware. This option enabled Heritage to adapt to rapid changes in technology by returning equipment at the end of a two-year lease and replacing it with new equipment. This approach achieved the goal of staying up to date with current technology, while assuring a fixed amount for the annual budgets.

Availability

The choice to lease equipment and replace it every two years gives Heritage great flexibility to buy quality products, which have minimal system down time due to hardware failures. While the track record over the six-year life of the Heritage Network has been outstanding, the system did experience a significant problem with the CPR software that required restarting the server about every two weeks. This problem was magnified by the fact that it most often occurred during periods of maximum system use. Eventually, the problem was found in the process the CPR used to verify codes with the billing software. Although Echo has not developed a software fix for this problem to date, the IS Team discovered an interim solution that by-passed the problem.

The leasing alternative does present a problem of its own, however. Every two years, all leased hardware, from servers to hubs and switches to desktop PCs, must be replaced. The challenge comes in replacing this hardware at times that are convenient to the end users, but that also fulfill leasing requirements for return of the equipment. The IS staff schedule time for replacement of the server and hub hardware outside regular business hours and give staff that might use the system during that time plenty of notice to make other arrangements. Replacement of the desktop PCs is done either during non-business hours or by coordinating with staff for convenient times.

Despite these issues, Team Jericho and corporate leadership believe the leasing option has proven to be the best approach to addressing the need to continually upgrade technology in a financially prudent way. For the success of the CPR, the corporation must provide the maximum amount of accessibility to staff, and leasing equipment is an economical way of doing so.

Continuity Planning

As part of the Heritage network design, Team Jericho challenged the IS staff to be prepared for the worst possible scenario: network failure. They developed a plan to allow the continuation of service without the CPR using paper forms. Forms were designed and developed to capture the same data being collected by the CPR.

This plan provided two benefits. One, staff members not currently using the CPR would document in a manner that matched the CPR, making the changeover from paper to the CPR easier. Two, if the CPR became unavailable, staff could continue providing service using paper forms in the same formats as the electronic record. Once the CPR was functional again, the handwritten information could simply be entered into the CPR to restore the integrity of the client record. These forms are currently in the workrooms of each Heritage site. The decision to switch to paper forms would be determined by the estimated length of time needed to recover the system.

IMPACT

Targeted Processes Successfully Changed

The project successfully achieved the corporation's four strategic objectives established at the start: 1) strengthen the service delivery process by developing an efficient patient record; 2) improve the efficiency of the information system; 3) enhance performance improvement efforts to efficiently meet the demands of external funding and regulatory bodies; and 4) increase staff access to information.

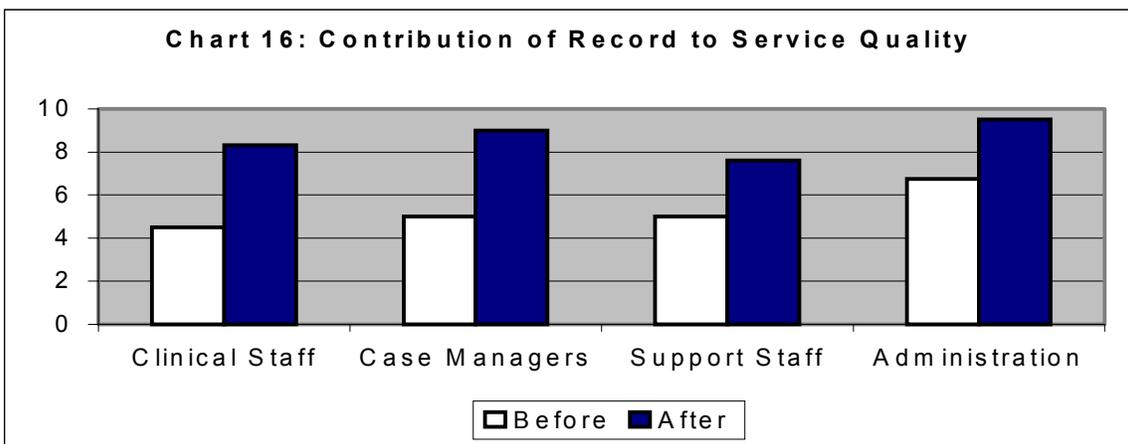
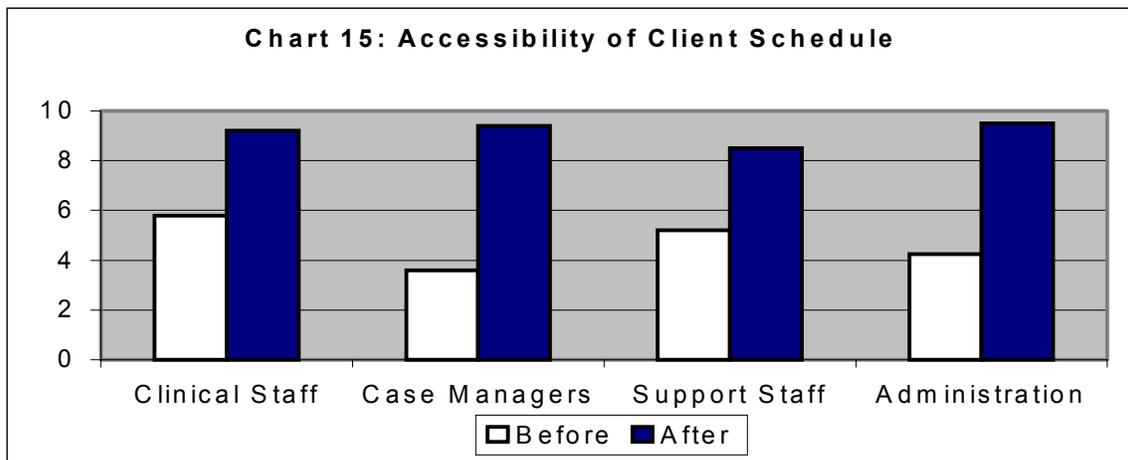
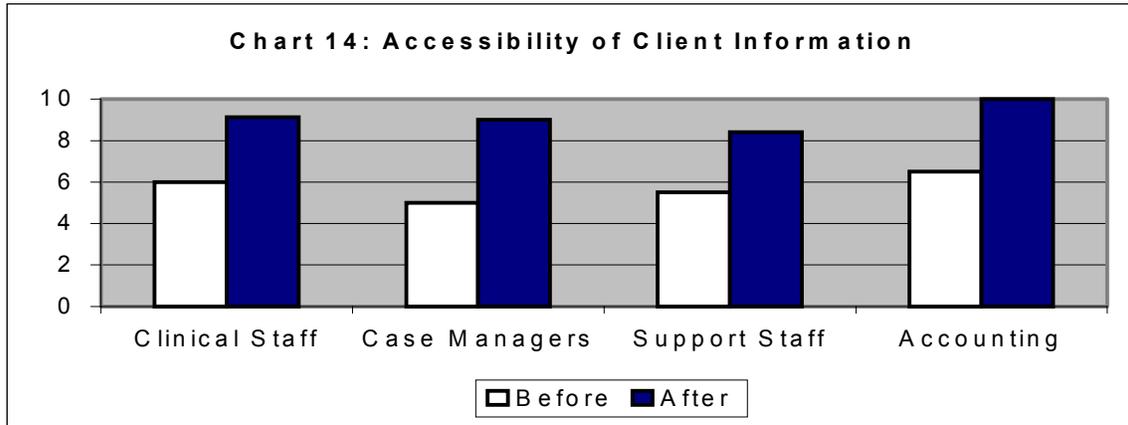
The following charts reveal the success of Team Jericho. The reaction of staff in various functional groups—clinical staff, case managers, support staff (primarily clerical) and administrative staff (primarily accounts receivable)—all indicate that Team Jericho met its stated objectives of better client care and increased efficiency. Specifically, Chart 14 shows how the staff perceives the improved accessibility of client demographic information. Chart 15 shows how the staff perceives the accessibility of client schedules. Perhaps the most significant rating, Chart 16 shows the reaction when staff were asked to rate the degree to which the patient record contributed to service quality. The staff clearly rate the CPR as significantly more valuable than the paper-based record.

Business Expectations Met

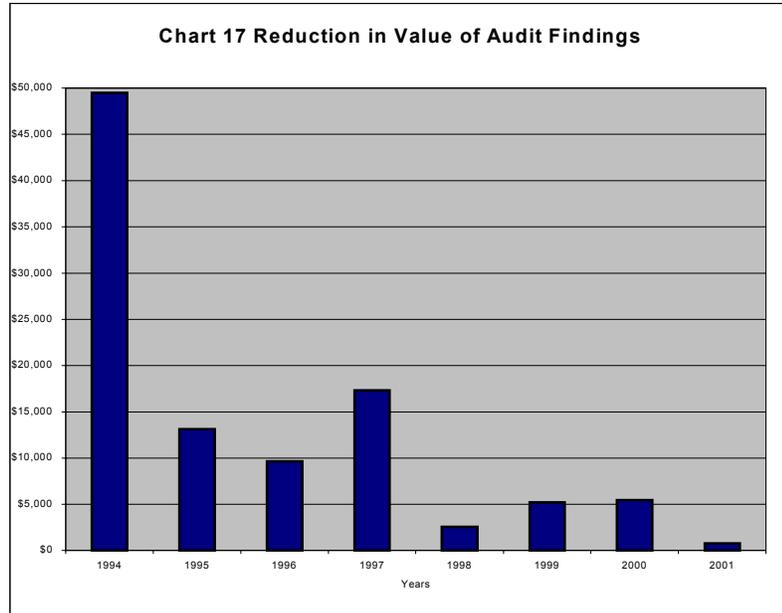
As a result of the implementation of the CPR, Heritage Behavioral Health has reduced costs associated with the documentation of client encounters in the clinical record. Five years ago, in an effort to increase productivity and provide support for the service delivery process, caregivers began to dictate notes that other employees transcribed into the paper record. The caregivers followed a prescribed format identifying all the necessary documentation requirements. Then they filled out a Client Services Record (CSR), which served as the source document for billing. At the heaviest point, Heritage had four staff transcriptionists and contracted for additional hours, at an annual cost of \$103,400. After the implementation of the CPR, one and a half transcriptionists were needed, exclusively dedicated to physicians, at a cost of \$33,150. This represents a 70% reduction in costs.

Implementing the CPR and moving caregivers away from dictating notes also decreased the length of time it takes to get the note into the chart. When the clinicians were dictating, they had one day to get their dictation tapes to the transcriptionist. The transcriptionist had three days to transcribe the note and get it back to the caregiver for review and signature. The caregiver could hold on to the note another two days before turning it in to Medical Records for filing. The Medical Records staff had three days to get the documentation into the chart. The total process could take as long as eight to ten days, and longer on occasion. With the implementation of the CPR, the caregivers enter their billing information and note within twenty-four hours of service delivery. As soon as the note is completed, it is available for use by anyone who needs to access the information. The change in this process has decreased the time it takes for the information to become available for use down to approximately one to two days.

Staff Perceptions of CPR Enhancements



To take advantage of changing technology, Heritage began leasing the necessary equipment rather than purchasing it. In 1997, the Heritage network consisted of 70 workstations that were leased for the annual amount of \$70,533 (\$1,007.90 per station) for four years. Since 1997, the cost of technology has decreased allowing Heritage to increase number of workstations



and decrease the length of the lease. The network now consists of 140 stations at an annual lease cost of \$111,115 (\$793.67 per station). The total cost of the leases in 1997 was \$282,132 compared to \$220,230 in 2001. The leases now turn over every two years helping Heritage stay current with new technology and enabling Heritage to return the leased equipment, reducing the need for disposal.

Before implementing the CPR, clerical staff maintained the clinical staff’s schedules in one system, then billing staff entered the billing data into a different system. With the development of the integrated CPR, information relevant to the billing of an encounter is automatically transferred to the billing system after the documentation of the encounter is complete. With this data entry savings, Heritage has been able to reduce the number of staff in these two areas from six to four. This represents cost savings of salaries and fringe benefits of \$39,000 per year.

During the re-engineering phase of the CPR project, certain processes were introduced to improve the compliance levels of the paper-based charts. Built into the CPR in the form of rules and prompts, these processes sharply reduced the deficiencies in the client records discovered in routine audits by our funding bodies. The repayments to payers for non-compliant documentation or ineligible services have decreased from \$49,477 in 1994 to \$774 in 2001. This decrease is more dramatic than it appears since 1999 marked the first year the Office of Mental Health, one of our funding sources, began to require the return of payments for ineligible services. Chart 17 shows the history of audit repayments for the past six years and their decline since the advent of the CPR project in 1995.

Looking at these critical areas, a preliminary estimate can be made of the total cost savings to Heritage as a result of the conversion to the CPR. The business case for the CPR project was to improve Heritage’s competitive position by making the support of client care more efficient and improving the quality of care. While these savings can be estimated, they are generally re-directed within an organization. Rather than savings,

they can be more accurately described as resources freed to strengthen the quality and support of Heritage’s client care.

Regardless of how you define these resources, the investment Heritage has made in the information system has a rate of return that can be calculated. The table at the right reveals the major areas of savings realized by the CPR. It then projects a savings over a three-year period of time for each of the areas. The return on investment over a three-year period is projected to be 0.63. Note that most of the resources freed up by the success of this project have already been redirected and put to more effective use in other areas of the organization.

Description	Value
Estimated cost of equipment, software, IS staffing, consultation and training over three years	\$750,000
Total savings in terms of transcription and documentation (see below)	\$210,750
Total savings in terms of chart audit paybacks over three years	\$146,109
Total savings in reduction in back office staffing for data entry over three years	\$117,000
Total savings over three years: (total 2-4)	\$473,859
Return on Investment in line 1:	0.63

FUTURE DIRECTIONS

With the development of the CPR, it became clear to Team Jericho that several issues must be resolved in the future to further the positive impact of the system.

Training Issues

From the early planning days, the importance of initial training for the CPR users was clearly understood by both ICON and Team Jericho. With the roll-out of the CPR, Heritage has realized it needs a commitment to ongoing end-user training, at a level greater than initially planned. For each new employee entering the organization, a CPR training module appropriate to the types of services he or she will provide was added to the general orientation curriculum. Because of the significant role of the CPR as a tool for service and support, competency with the CPR is a core requirement in Heritage’s credentialing system. New staff must complete this training as soon as possible after employment commences, often before they complete the general orientation. Heritage learned that new product releases or significant changes to the screens of the CPR requires additional staff training. To meet the need for a high level of end-user training, Heritage created a new position within the Information Systems Team devoted to training and user support.

Remote Access Issues

The move to the CPR brought with it the need for access to workstations connected to the network housing the CPR. The nature of community-based behavioral health care means that a disproportionate number of case management and crisis intervention services are provided out of the office, in client residences or at other sites without access to that network. Currently, case managers must return to the office to enter data about these visits. Heritage is beginning to explore with Echo Group the potential for using laptop devices. At a minimum, caregivers need to be able to document service encounters from offsite locations. Ideally, they need portable real-time access to the CPR database.

Software Support Issues

Heritage took great pains to customize the CPR to reflect the service delivery processes that resulted from its extensive re-engineering effort. The CPR software, Clinician's Desktop, allowed extensive customization, and Heritage took advantage of that feature by designing its own data tables and screens to meet the needs identified by Team Jericho. As the Echo Group develops future releases of Clinician's Desktop, Heritage is concerned that new releases may cause problems with the customized data tables, field locations and screens, leading to increased programming costs to re-create those features.

Technical Support Issues

From the beginning of the project, Heritage made certain that adequate helpdesk resources were available. The Technical HelpDesk was created early in the process, to assist staff with office equipment problems. The Technical HelpDesk operated between the hours of 8 a.m. and 5 p. m. As the concept of the helpdesk began to take hold within the organization, it was extended to include client care issues by creating a second helpdesk, the Clinical Resource Connection. Access to these helpdesks was consolidated in 1999 and any Heritage staff member could call one number to report difficulties with any equipment or clinical matters. The call would then be routed to the appropriate helpdesk member. As use of the CPR and network grows and because Heritage provides 24/7 services, this support must be extended to the full 24/7 work day. Team Jericho must devise a plan for this level of system support.

Security Issues

Like other healthcare providers, Team Jericho has invested a significant amount of time and effort trying to comprehend and comply with the new Healthcare Information Portability and Accessibility Act (HIPAA) rules. As these rules are interpreted and revised, Team Jericho will need to assure that the CPR is up to the challenges presented.

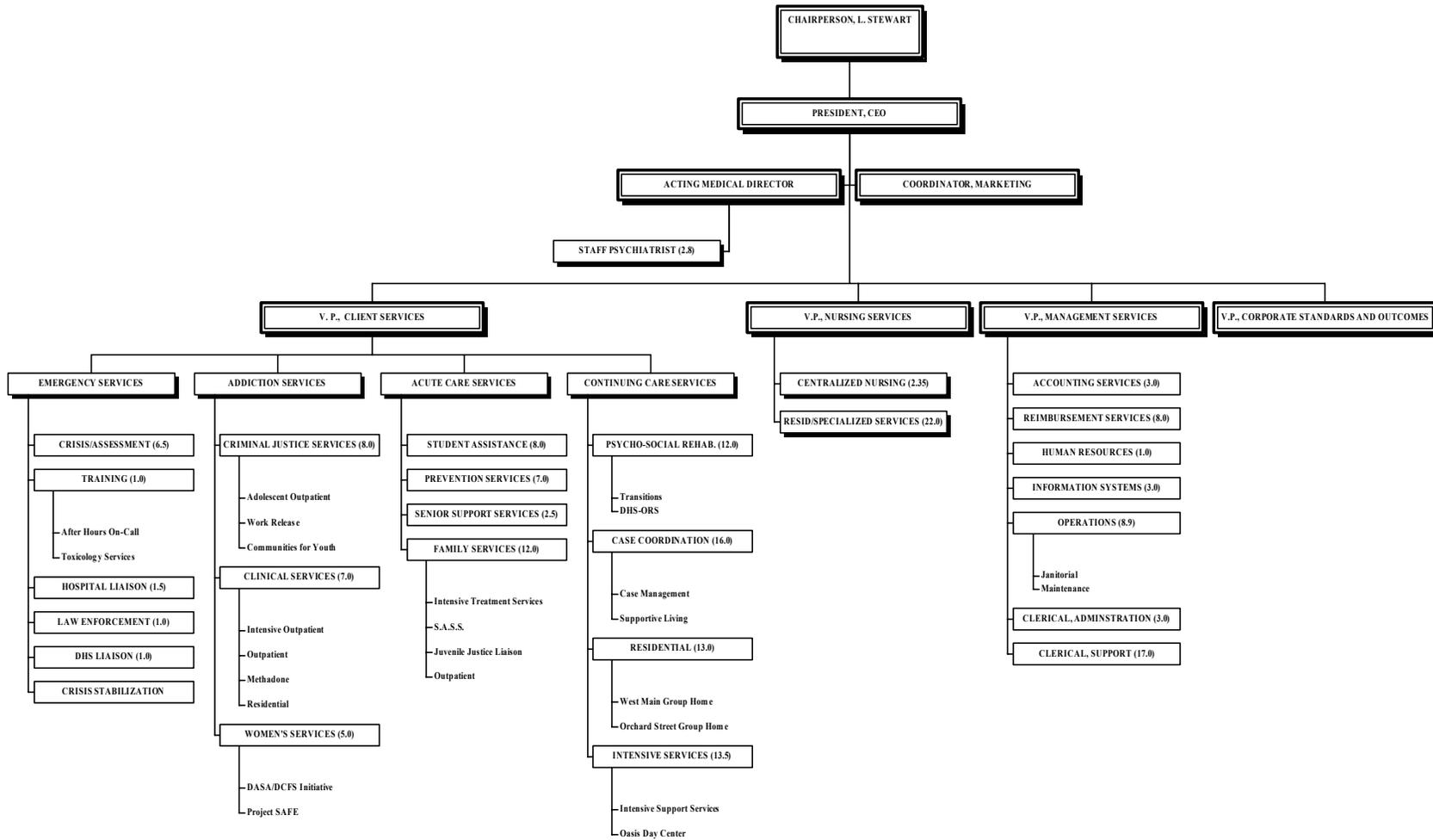
CONCLUSION

The project to develop a computer-based patient record has met or exceeded its goal of improving the quality of information management and, thereby, the competitive position of Heritage Behavioral Health. The CPR has already produced significant benefits to corporate operations. The team-based developmental process has produced a superior product that serves the delivery of client care. The CPR provides highly accessible information that is far more timely and accurate than the paper-based system. It also raises the quality of the care provided by Heritage through its clinical decision supports. Finally, it has also embedded into the corporate culture the value of teams in the design and implementation of mission-critical systems.

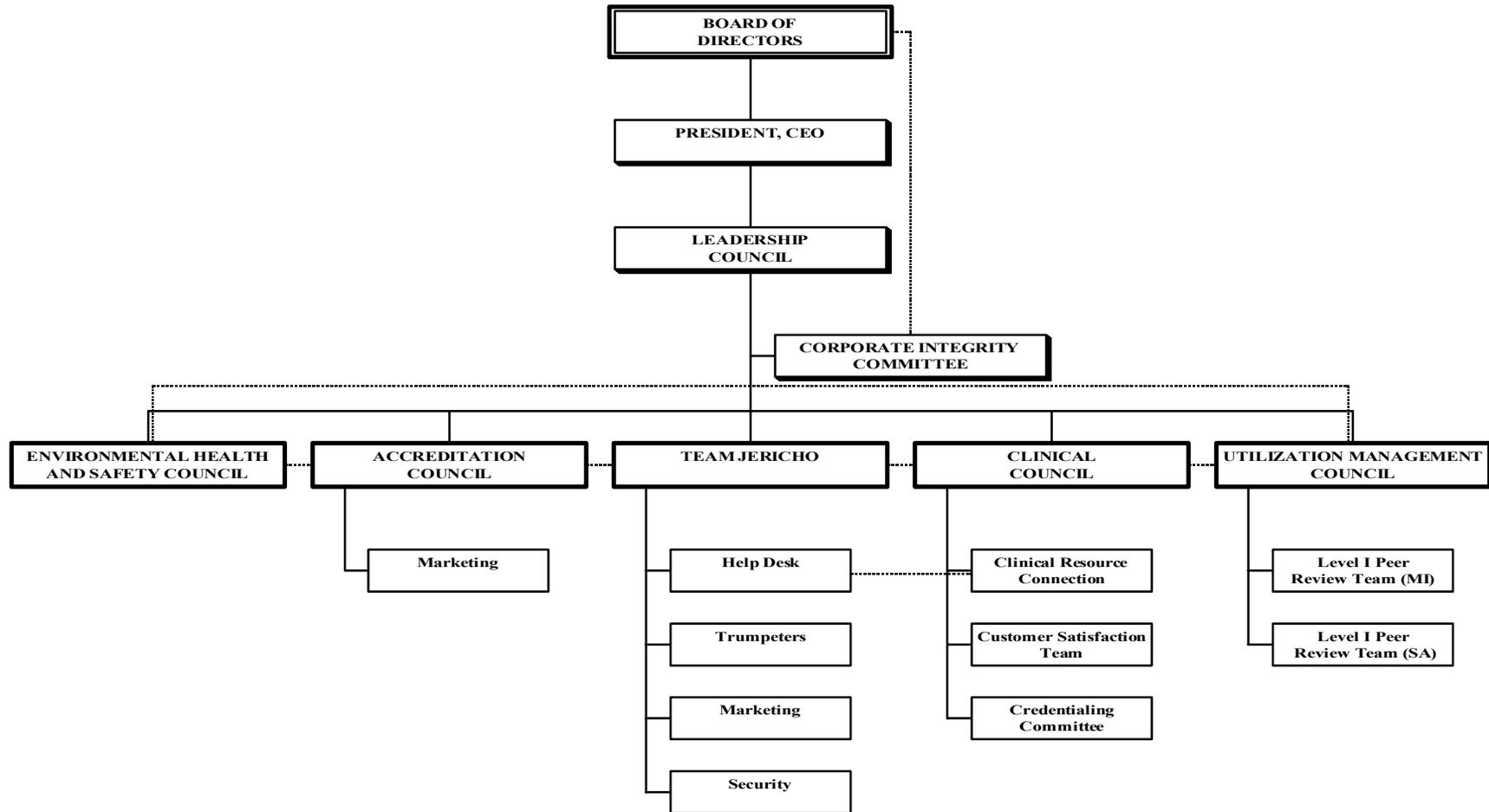
ACKNOWLEDGEMENTS

The authors wish to acknowledge the Board of Directors for its willingness to invest in the future of the corporation and the services it provides. They also wish to thank all of the staff that took part in one or more of the ICON/Team Jericho teams during the development of the CPR. Finally, they would also like to commend the caregivers and support staff that embraced so readily the new technology and the new ways of providing their services. Without the hard work and perseverance of these staff, the CPR project would not have been the success that it has become.

**APPENDIX A: HERITAGE BEHAVIORAL HEALTH CENTER, INC.
ORGANIZATIONAL CHART
October, 2000**



**APPENDIX B: HERITAGE BEHAVIORAL HEALTH CENTER, INC.
 CHART OF CROSS-FUNCTIONAL TEAMS
 October 2000**



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Appendix C: Business Model for the CPR									
		1	2	3	4	5	6	7	8
Date		1999	2000	2000	2000-2001	2000	2000	2001	2001
Business Model Functions		Contact & Referrals	Front Desk Scheduling	Front Desk Demographic Financial Consents	Initial and on-going Clinical Assessment & Tx Planning Process Noting update assessment process continually. Clinicians record data and use computer to help with assessment.	Clinician Scheduling	Ongoing Services: Verify data, 5 minutes at end of session to enter progress note. Check Authorizations and Electronic Inbox Medication Information	Discharge of Client	Referral Out and Follow-up.
Active Users & Locations		6 located in AR	4- Central Recep 2- 3 rd Floor 2- 4 th Floor Recep 2- 5 th Floor Recep 6-AR staff	4- Central Recep 2 3 rd Floor 2- 4 th Floor Recep 2 5 th Floor Recep 6 - AR staff	6 - Adult Assess 3 - Sr. Assess 9 - Child/Adol Assess 1 - Crisis/Detox Assess	13 - Alcohol Case Mgrs 25 - Crisis/Detox	Active process	4 clinical staff (split between staffing and AR)	In planning

	Computerized functions required to implement business model.		<p>*Who will be providing this service</p> <p>*When will we do conversion from ESI (old scheduling)?</p> <p>*Report/Print interim notification of added events</p> <p>*Technical Issues with HSIS & CDT</p>	<p>*This is currently being done through HSIS (back office billing).</p> <p>*How will this process change in CDT (point-of-service data capture).</p>	<p>*Do we want to minimize our official Assessment</p> <p>*Do we want a process to have the client fill out some of the assessment followed by data entry?</p> <p>*Will the process of MHP/QMHP still be in place, how would we want security to work on the assessment screens?</p> <p>*Build Screens</p> <p>*Train Staff</p>	<p>*When will the clinical staff begin scheduling</p> <p>*What events are going to be scheduled in advanced?</p> <p>*Who will need to be trained?</p>	<p>*Clinical Staff trained on progress notes.</p> <p>*Determine templates for progress notes.</p> <p>*Ongoing dictation needs defined and synchronization with electronic usage.</p> <p>*Who will need to be trained?</p> <p>Print capability</p>	<p>*Build Discharge Summary Screen</p> <p>*Close Enrollment Process</p>	<p>*What will be our process to send /monitor referral data especially in terms of confidentiality?</p>
	Ongoing data support	<p>Verification of Consumer Data</p> <p>Utilization Management-- Financial Eligibility-- Authorization Tracking-- Provider Credentialing</p> <p>Payments, Billing, Month-end updates, State Reporting, Financial Reporting</p>							
	On-going technical support	<p>Maintenance of Tables , Codes, Rules, Policy and Procedure</p> <p>On-going Training</p> <p>Electronic Records Security Monitoring- Synchronization with Security of Paper - HIPAA</p> <p>Disaster Recovery and Backup Procedures: What do you do when system is down?</p> <p>On Going Computer Equipment Needs</p>							

Appendix D: Users by Location

Physical Location and Users

