

Rethinking the Behavioral Health Organization

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R2

An Information Systems
Source Book

The Health Systems Consulting Re-engineering Series

- R1 - A Re-engineering Source Book
- R2 - An Information Systems Source Book
- R3 - A Strategic Information Assessment Guide
- R4 - A Sample Information System Request for Proposals

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1

Organization of the Current Volume

“MIS information” and “mis-information” are spelled the same way. The trick is to know which one you’re dealing with at any particular point in time.

HSC’s First Rule of Systems

R2 - Rethinking the Behavioral Health Organization: An Information Systems Source Book is the second volume in the HSC Re-engineering Series and is divided into several chapters to help the reader: (1) understand the background and evolution of behavioral health information systems and the role of computers; (2) understand what to expect from a comprehensive behavioral health information system; (3) learn how to evaluate system vendors and select an appropriate system; and (4) gain insight into the process of implementing systems and staffing for their successful operation.

Specifically, the chapters are as follows:

- A Bit of Background — This chapter is designed to provide an overview of the history of behavioral health information systems and the role the information system plays in the behavioral health field.
- The Shape of Information Technology — This chapter outlines an approach to technology deployment that will help ensure organizational success. In addition, this chapter should help those managers who are still surprised that technology is required for them to do their jobs by attempting to put the computer’s role into a proper perspective.
- What Can an Information System Do? — Everyone knows what an information system can do, right? (Would that it were so.) This chapter outlines a structure of a hypothetical behavioral health information system and steps through its various components to provide you with a better understanding of what you can expect from comprehensive information system software.
- Evaluating System Vendors — System vendors aren’t all alike. The vendor that’s the best choice for one organization might not be the best choice for another. How can you tell which one is best for you? This chapter discusses factors that can be used to evaluate vendors and includes a brief checklist to help you compare one vendor to another.
- Selecting an Information System — Behavioral health information systems aren’t available at your corner discount store; you have to shop around for the

right one for your organization. This chapter discusses the process of selecting and acquiring an information system and suggests a structure for creating an objective Request for Proposals (RFP) and evaluating vendor responses.

- **Implementation: The Key to Success** — The best system hardware and software by themselves and fifty cents will get you a cup of coffee (the non-gourmet variety). To be successful, good hardware and software must be implemented effectively. This chapter describes the phases of system implementation and your role in each.
- **Implementation Tips & Mistakes** — Even if one goes through all the steps of a system implementation, it is possible to make mistakes. To help avoid such problems, this chapter discusses a few implementation tips to help you succeed and a few mistakes you should try to avoid.
- **Staffing an Information System** — No information system can run itself; it must be supported by an appropriate organization staffed by qualified individuals. This chapter provides information about factors to consider when designing and operating an information systems department, identifies functions to be performed by the staff, and shares some comparative information on industry compensation levels for information systems professionals.
- **Appendix A: Data Needed for Decision-Making** — Each of the traditional types of data in a behavioral health information system (i.e., services, demographics, outcomes and financial) can be used to answer different management questions. This chapter presents a table that shows the relationships among the pieces of the various data sets and the types of decisions made by users of behavioral health information.

2

A Bit of Background

It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage, than the creation of a new system.

For the initiator has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who would gain by the new ones.

Machiavelli "The Prince" (1513)

The Behavioral Health Marketplace

The behavioral health world is changing. Today new management and financial challenges confront behavioral health organizations, not the least of which is reduced funding. The behavioral health program manager must give continuing attention to program income, third party reimbursements and financial self-sufficiency. The challenges are compounded in many instances by the changing role of government. Federal, state, and local governments are reconsidering their priorities and asking where behavioral health fits in government services.

The catch phrase these days for behavioral health programs is to “run them like a business.” This does not mean that profits are more important than people. However, it does mean that human service organizations can no longer be casual about their approach to management. In organizations all over the country, managers are using computers to assist them in decision making and to tighten up their shops. At a very basic level this may mean introducing automated dunning procedures to chase accounts receivable. But a more forward looking view is that “tightening up” means getting better control of how the organization is running.

Computer systems are being used by everyone from managers to clerks; systems are tallying encounters and describing the services delivered, the outcomes achieved and the costs incurred by those encounters. These data are grist for the mill of management decision making. Managers cannot see or plan in the dark; nor can a behavioral health organization be managed if it's uncertain of its “product,” how much the product sells for, how well the organization does in collecting revenues or how well the organization delivers those products. Like every other care provider, behavioral health organizations

need new tools to help in managing programs, assisting consumers and gathering revenue.

History of Behavioral Health Information Systems

During the past decade, a large percentage of the nation's behavioral health organizations attempted the implementation of automated information systems. Most of the efforts fell within one of three approaches — internal design and development, importing of another organization's system or acquiring a commercially developed system.

Internally Developed Systems

In the 1970s, the hiring of technical staff to conduct program evaluation and related activities spearheaded the computerization of behavioral health organizations. As these individuals systematically began to use information in their organizations, they started to appreciate the need for automated systems to handle the volume of data generated by behavioral health organizations.

It was only natural for the new technicians to assume that they could create their own information systems. "The local university has a computer that isn't used all the time and I took a programming course in college. Therefore, I can program a system."

However, even with a technical background, the typical computer programmer (then or now) is likely to be no more qualified to design a complete system for a behavioral health organization than the typical Business Administration graduate is to step in as Executive Director.

Unfortunately, many internal system attempts were unsuccessful; the highly complex needs of behavioral health organizations made it almost impossible for a single organization to commit the resources required to develop (and support) a viable information system.

Even in those situations where the systems succeeded, many organizations have since outgrown both the scope and the expandability of the original systems. The payoff for being one of the first to get into the field is being one of the first to have to get a new information system.

Imported Systems

For those organizations that did not have the technical expertise to initiate their own systems, it seemed only natural to import a system from another organization that did. Almost without exception, however, such attempts were expensive failures. Few organizations that had developed systems had software that could meet the different needs of other behavioral health providers. In addition, the system developers could not invest the time and money required to maintain, enhance and support the other installations of their systems.

As a result, numerous organizations that acquired other groups' systems were left with software that didn't meet their needs and was unsupported. Many of them simply let the systems die. Others hired expensive programmers to try to make their systems more responsive. All in all, it was (and continues to be) a bad situation.

Commercial Systems

The widespread purchase of commercial systems has been slow in coming. In the past, many so-called "commercial" vendors were little more than small groups of programmers trying to sell software packages that had been developed for particular organizations. Few had begun their software development with clean slates and open minds. Consequently, most of the systems could not meet the wide range of requirements experienced across organizations or within one organization over time.

Some commercial vendors, both large and small, attempted to adapt packages originally designed for medical practice applications and based upon an inappropriate understanding of the needs of behavioral health programs. "After all, behavioral health is just another type of medical environment. Right?"

Once again, the result was a series of system failures throughout the country. Many organizations were left with systems that did not work and obligations for tens or hundreds of thousands of dollars. Fortunately, this trend is decreasing. A few vendors have emerged as viable sources of software, their systems are getting better and behavioral health organizations are recognizing the fact.

It is only within the recent past that the information system market has begun to stabilize. Commercial vendors have been accepted as a "normal" method for an organization to get a system and the competition among surviving vendors has heated up. Several of the weaker vendors have been "weeded out" of the market, a process that has resulted in the strengthening of the survivors.

Evolving Technologies

The behavioral health information system market is not yet completely stable, however. Along with the emergence of a few dominant vendors has come the personal computer revolution. The result has been a tendency for many behavioral health organizations to once again attempt to develop their own systems using personal computers and off-the-shelf software packages.

So, while in some situations the personal computer approach may not represent a viable alternative to a behavioral health organization, it has a great deal of face validity to the unsophisticated buyer. "After all, why should I spend \$100,000 for some big computer when my local computer store tells me it has a personal computer and some database and accounting software that can do the same thing for one-twentieth as much."

And even the more sophisticated buyer may still be swayed by the internal software guru who, with great enthusiasm and little understanding of the demands of business software and support, states, "Hey! There isn't anything that can't be done easily with Microsoft® Access®!"

The overall effect of the problems the behavioral health field has experienced in acquiring systems technology has been to take what was already a provincial, word-of-mouth marketplace and make it justifiably paranoid about systems.

Such a situation places an additional burden on the buyer of sophisticated information systems. No longer can the behavioral health provider community sit back and assume that vendors will come to them with quality systems. Rather, organizations must be proactive, understand their own needs and educate themselves about what questions to ask the vendors who are offering to sell them systems.

But that's why you're reading this, isn't it? Let's continue with a few basics.

The Information System as a Management Tool

Managing the variety of behavioral health services in order to use resources most effectively requires planning, organization, control and leadership.

- Planning requires assessment of an organization's external environment and internal capabilities, the setting of goals and the choice of operating strategies.
- Organization is the architecture, the structuring of resources into programs, the establishment of a hierarchy for supervision and the selection of appropriate personnel.
- Control is the process of comparing actual activities with objectives or standards, of noting any differences and of taking corrective action. Control is exercised not merely as a matter of enforcement, but diagnosis that leads to adjustments, perhaps even of goals and standards.
- Leadership is required at all echelons of an organization and derives from informal as well as formal sources; it involves communication and the whole gamut of human behaviors that can motivate and reinforce effective performance.

Underlying each of the above management processes is *decision making*; and integral to effective decision making is the availability of accurate and comprehensive information in a systematic fashion.

Briefly stated,

An information system is a management tool that is designed to provide key information in a form usable for decision making.

To be a bit more specific . . . An information system is a system for gathering information, accumulating it in an organized format and summarizing the information in periodic reports or in reports responsive to special requests. Input documents are prepared that describe an organization's activities; these are filed in a database; information is periodically abstracted from that database and summarized in regular or special reports. In simplest terms, an information system consists of input, storage of information in a database, data processing, and output in the form of reports or inquiry displays.

A BIT OF BACKGROUND

By portraying how resources are being spent currently, an information system can provide data for determining the cost of services and for setting rates. The “at risk” population can be compared with the “receiving services” population. Contract costs can be related to contract revenues. These kinds of information permit an organization to determine whether resources are being spent as intended.

By providing monitoring aids for program managers at each level of the organization, an information system enables them to compare the actual resource use with scheduled utilization so that corrective action can be taken before programs get too far off plan.

By processing basic data in ways to meet the differing needs of separate funding agencies, an information system both reduces multiple report preparation costs and improves the quality of the data furnished.

By providing data for planning purposes, an information system can support short-term decisions and long-term decision making. Short-term decisions a system can address include: reallocation of staff and other resources and making services available to those populations identified as underserved. Long-term decisions it can address include: effectiveness of service elements, treatment methods and personnel; identification of need for innovative programs to replace ineffective programs; and the development of new marketing approaches to bid and capture jobs that utilize newly recognized consumer resources.

Despite the evident benefits to be gained from an information system, the question of whether to implement a system may remain problematical for some organizations. Implementing an information system can, and does, cause organizational distress; it does this by exposing difficulties. There have been instances where information system implementation has made painfully clear that conflicts of many sorts prevail: from overlapping responsibilities to personality clashes. By itself, however an information system contains no imperatives, exerts no control, makes no decisions — it only reflects what is going on in an organization.

An information system is not a panacea for any of the ills that plague behavioral health organizations — it is only a management tool. There can be no substitute for human judgment and ingenuity combined with determination and skill in using that tool.

Information System Roles

The well designed information system has a variety of roles:

- Operations — To provide a base of information about the operations of the organization that can be used for making key management decisions.
- Planning — To act as a planning base for consumer care and organizational development.
- Financial Responsibility — To provide an information base to help assure cost-efficient and fiscally responsible operation of the organization.
- Billing and Accounts Receivable — To provide a way to account for services delivered and transmit the information to the parties who will reimburse the organizations for those services.
- Quality Assurance — To provide a documented record of service delivery and clinical information which is available for peer review and utilization review to help ensure that consumers are receiving quality care.
- Continuity of Care — To enhance continuity of care in cases of subsequent admissions of consumers into treatment.
- Research and Evaluation — To serve as a database for further behavioral health research, evaluation and education.

The well designed information system is not maintained *in addition to* programmatic or business practice; it is by its very nature *an integral part* of those practices. It is the tool through which information about consumer and business productivity are channeled so that informed and appropriate decisions can be made. It should not be simply a collection of unrelated pieces of data, but rather a finely honed tool for organizing pertinent programmatic and organizational information so that management decisions, solidly based upon information, can be made.

Many organizations fail to grasp the potential of an information system; they treat the system as an administrative tool designed to meet the needs of organizational management and outside accountability only. In such cases it's no wonder that staff regard the information system as mere paperwork; the system meets few if any of the needs of the individual in making decisions about the programmatic care of consumers or the productivity of the organization.

3

The Shape of Information Technology

*Technology, in and of itself, is neither good nor evil.
But, you must have technology in order to do either.*

Arthur C. Clarke

Despite the evident benefits to be gained from a comprehensive, enterprise-wide, service-based information system, the question of whether to fully implement such a system may remain problematical for the typical behavioral health organization. Implementing all the potential functionality of a comprehensive management information system is highly resource-intensive and often causes organizational distress by exposing difficulties. There have been instances where system implementation has made painfully clear that conflicts of many sorts prevail (e.g., overlapping responsibilities, management problems, personality clashes).

For that reason, an appropriate organizational review designed to assess how information is used and decisions are made should be part of the implementation of any information technology. It's important to remember that the review is of the organization, not of the information system. Such a review can (and should) act as a barometer for what is happening within the organization. Because information technology touches each part of the organization, a review of the organization's technology should also.¹

Such an in-depth organizational analysis is critical because the role of the management information system within behavioral healthcare organizations is changing as we move into the 21st century. In the indemnity world of the past twenty years one billed for whatever one did and the typical behavioral health information system simply recorded and reported services. However, under managed care the individual consumer's needs and benefits are much more a part of the service delivery process (e.g., benefits verification, prior authorizations, clinical necessity) and the system has become the method whereby the organization does business. Therefore, in many ways, the comprehensive information system has moved from being a passive component at the end of the service delivery chain of events to being an active component at the front.

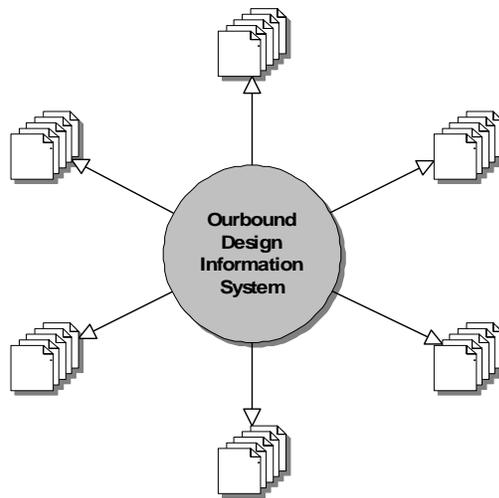
Let's look at the difference.

¹ *R3 - Rethinking the Behavioral Health Organization: A Strategic Information Assessment Guide*, the third volume in the HSC Re-engineering Series, describes how to conduct a strategic information assessment (SIA) to provide information about your current information system status as well as recommendations for increasing system performance to meet your organization's current and future needs.

Outbound & Inbound Design Information Systems

Use of information systems is changing. In past years, systems were traditionally designed to accumulate information from various sources, aggregate it into pre-structured reports, and then distribute those reports on a pre-defined schedule to various users throughout the organization. Such “outbound design” systems (shown below) tended to be perceived by staff as being peripheral to the day-to-day job at hand, not least because aggregate reports had little to do with the decisions that needed to be made on any given day.

"Outbound Design" Information Systems

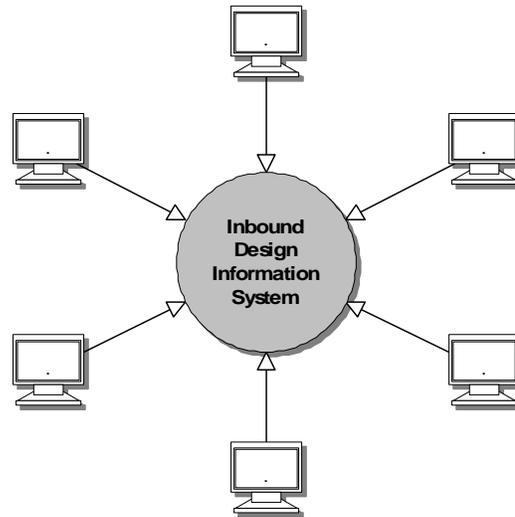


The outbound design system is used to prepare periodic, pre-defined reports which are then distributed to users on a scheduled basis.

More appropriate in the current industry environment is an “inbound design” approach (shown below) that places less emphasis on pre-defined reports and focuses on providing an easily accessible repository of key information that is available to multiple users whenever they need it and in whatever form is required. Taken to an extreme, an inbound design system might never be used to produce pre-defined reports.

As behavioral health organizations expand the use of technology to support clinical and other widespread automation, the degree to which their information system development follows an inbound design will determine the degree of technological success they will enjoy.

"Inbound Design" Information Systems

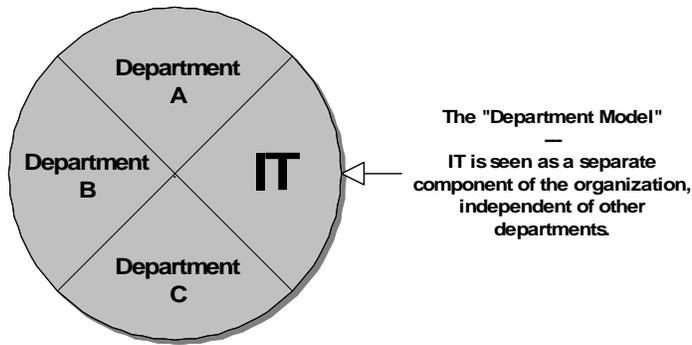


The inbound design information system relies less upon pre-structured reports, and serves more as an information resource that can be consulted as required by users in need of particular information.

The IT Ring

The method used for deploying technology in a behavioral health organization is as important as the adoption of the inbound design discussed above. Traditionally, outbound design systems have been operated by IT departments whose primary role was the “care and feeding” of the computer and ensuring that reports went out on time. In organizations with such systems, IT departments are often inwardly-focused and have little contact with the other parts of the organization that they serve. The diagram below shows a “Department Model” deployment.

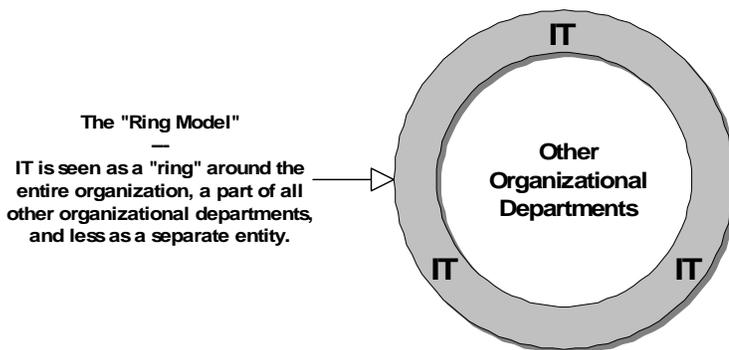
The "Department Model" of IT Deployment



Inbound systems are most successful when the technology is deployed as if it were a ring around the entire organization, in recognition that information is a part of everything that the organization does. The diagram below shows a "Ring Model" deployment.

In other words, instead of thinking of IT as representing X% of the organization as in the "Department Model," in the "Ring Model" it is more proper to consider IT as representing X% of each department of the organization. Total IT resources may be the same in both cases, but the perception of the rest of the organization and the role of the IT Department are very different.

The "Ring Model" of IT Deployment



The most significant difference is that in the "Ring Model" the primary IT role is customer service, with the customers being the users of the information the system contains. Therefore, it is no longer appropriate for the IT Department to focus solely upon software and hardware. In order for the IT Department to be effective within the organization, it must get out of the "back room" and into the "board room" where decisions are made and information requirements are determined. Therefore, the content of the information system must be such that it is perceived by the rest of the organization as be-

ing relevant for dealing with organizational problems. To achieve that end, the IT Department must focus less on information process and more upon information use, less on how the software works and more on the how the organization works.

There's No Getting Around It; You'll Need a Computer

Even today, probably one of the most frequently asked questions about information systems is, "Will getting an information system mean getting a computer?" This query is usually accompanied by squeaks of delight or wails of despair; it seems nobody is neutral about computers. The "infernal machines" are alternately perceived as being the greatest thing since sliced bread or the worst scourge since the Black Death of the middle ages. As with most things, however, reality lies somewhere in between the two extremes. Computers are nothing more than tools for doing a job, just as hammers and saws are tools for doing jobs. In this sense, the only differences between computers, hammers and saws are the particular jobs to be done.²



The concept of the information system as a "tool" is appropriate. Like all tools, the information system is little more than an amplifier. It contributes nothing original to the operation of a behavioral health organization, yet provides decision makers with the structure and information required to focus, amplify and enhance clinical and business judgment.

² Some people embrace computers, while others simply go blank. Perhaps the second group's blank response stems from the fact that the computer is the first tool in the history of civilization that was designed independently of its intended use. People can see what a hammer or saw is supposed to do and they may even have some expectations about what a VCR or DVD player should do (even if they can't get it to stop flashing 12:00). They can guess how a car works and maybe even understand airplanes. But a computer is different. One minute it's a fancy typewriter, ... the next minute it's a movie screen, ... then it's a game, ... then a communications device, ... then a printing press, ... then a mailbox, ... then a travel agent, ... and all the time it just sits there. When asked to describe what a computer is, those people want to say, "it's just like a (fill in the blank)," but there is no simple answer. A computer isn't like anything else; it's like everything else.

The answer to the question, “Will it mean a computer?” is a very definite “yes.” In today’s environment of managed care and complex accountability requirements a computer is *required* to implement an information system. The requirements for reporting and billing demand a versatility and responsiveness not to be found in a manual system. A well designed automated information system can readily provide a behavioral health manager with an array of decision support tools sufficient to address many, if not most, of the issues that might be encountered in the management of a behavioral health program.

Although much of what is said about automated information systems can apply equally well to manual systems, it should be assumed that the most appropriate route for most programs to take in information system development is one of automation. Such an assumption is based upon two factors:

- **Manual Systems Are Inflexible** — Manual information systems are necessarily organized around a predefined set of management questions which are appropriate to the program at the time of the system’s development. They are further limited by the available technology — in this case, pencils and paper. Due to the volume of data reduction in any but the smallest behavioral health programs, the number of ways the data can be organized manually is very limited. Therefore, a few major management questions are identified, the structure of the system is thus defined and the system is implemented.

However, one reality of the behavioral health field is that perceived needs are continually changing in such a way that information requirements are constantly in a state of flux. Regulations change; new advisory agencies spring into existence; management tools become more sophisticated. These and other similar issues make information demands of a manual system which often exhibit little concern for “the way things were originally set up.” The result? Previously established summaries and procedures end up having little relationship to the new information needed and the system operator is faced with retrieving a stack of source documents from a drawer or box somewhere and beginning to tally items by hand.

The manual information system has thus failed in its primary mission — to be able to respond to information needs encountered in the operation of the program.

- **Computers Are Flexible** — Modern computer software allows a behavioral health program to make use of state-of-the-art techniques in information system design. No longer is it necessary to design a system with all reporting requirements determined in advance.

In earlier days, as an activity was entered into the computer, separate accumulator “buckets” for sessions of that type of activity, the staff member’s time, the consumer’s services received and other key factors were each increased by the appropriate amounts. This was done primarily because of the high cost of storing the raw data in the computer. By immediately posting the increases in buckets, the raw data could soon be discarded or archived. Then, at some later time, preformatted reports would be run which did little more than relate the totals in

the various buckets. Such traditional information systems, while providing some information to decision makers, were bound to predefined needs. There was little flexibility for responding to “new” questions.

Today, however, with the advent of high-speed, high-density disk storage systems, a typical office computer is capable of inexpensively storing many months (or years) of raw transaction data for immediate analysis. Then, by interconnecting the transaction data with consumer, staff and financial information stored elsewhere in the system, it becomes possible to respond to a wide variety of unanticipated management questions.

- **Computers Are Relatively Inexpensive** — Contrary to popular myth, computers are not expensive toys for the few “rich” behavioral health programs. Recent advances in computer technology and production have brought the price of in-house computer systems to an affordable level. It is now possible to secure computer hardware and software capable of handling most required clinical and financial functions for a cost in the range of 1% to 5% of a program’s annual budget. This represents a one-time investment which could be extended over a longer period through various rental, lease or purchase arrangements available from the supplier.

Considering the cost of producing similar management information manually, the computer has at last become the most viable option for behavioral health programs.

Keeping the Computer in Perspective

For the past thirty or so years, data processing professionals have jealously guarded their computers from the rest of us mere mortals. To our own discredit, we have let them get away with it. The result, in many cases, has been the creation of many misunderstandings about “the infernal machines” and the development of serious “computerphobia” among many managers.

Let’s get a couple of things out in the open:

- **It’s Just a Tool** — There is nothing magic about a computer. Fascinating and amazing, maybe, but not magic. No matter what shade of gray (they do often seem to be gray, don’t they?), computers are nothing more than tools.
- **High Speed File Clerk** — Behavioral health information systems do not place extensive computational demands on computers. After all, we’re not trying to figure out next month’s weather in Duluth or predict the next eclipse of the sun in Thailand; we’re simply collecting some relevant information, looking up some pertinent facts and adding a number here and there.

What the computers do is periodically review large amounts of information, make some basic decisions and record the results somewhere. For example, if

you enter an activity into a system, you are usually recording information about the following:

"Who delivered how much of what service to whom, when, under which program, at what location, with what result, at what cost, reimbursable by what fee, using what source of funds?"

If a system can collect and store information like the above, and then manipulate and report it as necessary, that system can meet many, if not most, of the needs of a behavioral health organization.

Consider the situation where activities and services are recorded as follows:

"I, John Q. Therapist, delivered one hour of individual therapy to Mary J. Fictitious, August 15, 2004, within the center, at the satellite site, resulting in a level of functioning score of 20, at a cost of \$56.25, reimbursable by \$60.00 from Medicaid."

If information such as the above were recorded for every activity and service that occurred in a behavioral health organization and all those records were thrown into a large room, what could you do with them? Could you bill for services? Could you tell how much direct supervision was provided in August? Could you count the total unduplicated number of consumers seen in the center during 2004? Could you figure the cost effectiveness of using certain types of staff for certain types of activities? Could you compare revenues generated by different programs? Could you do a whole lot more?

Sure you could. It might take you awhile to sort through everything, but you could do it. So could a computer. And neither you nor the computer would need any magic to pull it off. In other words, the computer probably wouldn't do anything not already being done by a clerical worker in your current (or prior) manual system. The computer just does it faster and more reliably.

Note that the form in which the above information is recorded is immaterial; it could be recorded on a time/charge slip, entered on a service entry document or written out longhand on a napkin. It also doesn't matter whether it is then entered into a computer or handwritten on a ledger card. The information simply needs to be recorded in such a manner that it can be identified for later analysis.

The Role of Manual Processes

You should realize that *complete* automation in behavioral health system design is not a *sine qua non*. It is quite possible, and in many cases desirable, to have manual components to a computerized information system. An organization may find that the acquisition of an automated system that meets *all* of its needs would be prohibitively expensive.

Therefore, certain portions of the information systems' role may be left to manual processes. Usually the manual components include those reporting needs which are infrequent and/or easily handled with existing manual procedures. (The more flexible the system and the more powerful its report writing capabilities, the fewer manual subsystems that may be required.) Such a hybridization of manual and automated system components is often a good way to go. Don't worry, nobody is going to "throw you out of the club" for having a partially manual system.



Health Systems Consulting

4

What Can an Information System Do?

Any sufficiently advanced technology is indistinguishable from magic.

Arthur C. Clarke

Roger G. Nibler, a management consultant, used to tell a story about how managers react to computers and information systems. He described their behaviors as comparable to the reactions of a dog watching an automobile in the street.



If the car were to move to the right, the dog would simply move his head to the right. If the car were to move to the left, the dog would simply move his head to the left. However, if the car were to move straight up in the air, the dog would simply move his head upward to follow its motion. The dog would show no surprise, because he has no expectation whatever about what is reasonable behavior for an automobile.

Nibler's story was appropriate when he told it in the 1970's and it's still appropriate today. Behavioral health management and clinical staff, for the most part, have little idea about what an information system should be able to do. As a result, they have low expectations for the system. Unfortunately, low expectations frequently become self-fulfilling prophecies. "I didn't think it could do anything useful, and it couldn't." At the other end of the spectrum is the individual who doesn't understand what an information system can do, but is convinced that "computers can do anything."

Both positions can get an organization in trouble, so let's take some time and look at what is reasonable behavior for a behavioral health information system.



General System Characteristics

There are several characteristics that are important when evaluating the functionality of a behavioral health information system, including: (1) suitability for behavioral health; (2) flexibility; (3) comprehensiveness; (4) degree of integration; (5) reporting capabilities; and (6) on-line, real-time operation.

Suitability for Behavioral Health

Systems specifically designed for the behavioral health industry are best equipped to accommodate the complexities not found in other areas of healthcare. Nowhere does this become more apparent than in the complex nature of behavioral health billing and accounts receivable, including managed care.

Flexibility

The needs of behavioral health providers differ based upon organizational size, location, funding streams, management styles and other factors. For that reason, a comprehensive behavioral health information system should have a strong theme of “user-definability” designed into its structure. Even though such a system may be delivered with a structure that can be used “out-of-the-box,” it should also be able to be modified or re-defined by the organization to meet its unique needs. Data elements, code values, service codes, billing rules and formats, reports and other factors should be under the control of the end-user’s organization without the need for special programming or vendor intervention.

Comprehensiveness

A comprehensive system with all the components required for the complete operation of a behavioral health provider should include:

- User-Defined Clinical Database
- User-Defined Staff Database for Credentialing
- Human Resources
- Timekeeping and Service Recording
- Clinical Service Notes
- Managed Care Contract Administration & Management
- General Ledger
- Consumer Accounting
- Billing & Accounts Receivable
- Accounts Payable
- Payroll
- Costing
- Report Writing Capabilities

WHAT CAN AN INFORMATION SYSTEM DO?

Degree of Integration

The system should have a high degree of integration. Redundant data entry should not be necessary. Once the consumer's name (or other piece of information that is used in multiple parts of the system) is entered, you should not have to enter it again; the information should already be present wherever it's required and to all users who require it, subject only to assigned access security.

Reporting Capabilities

In this day and age, it is unlikely that any system could address a typical behavioral health organization's management needs solely through pre-defined reports located throughout its modules. Rather, the system should be able to draw upon industry-compatible report writers to prepare custom reports on an ad hoc basis. Such user-definable report writers allow the user to draw information from the system and combine it in meaningful ways based upon the requirements at hand. Ideally, once defined, reports should be able to be retained and run at any later time.

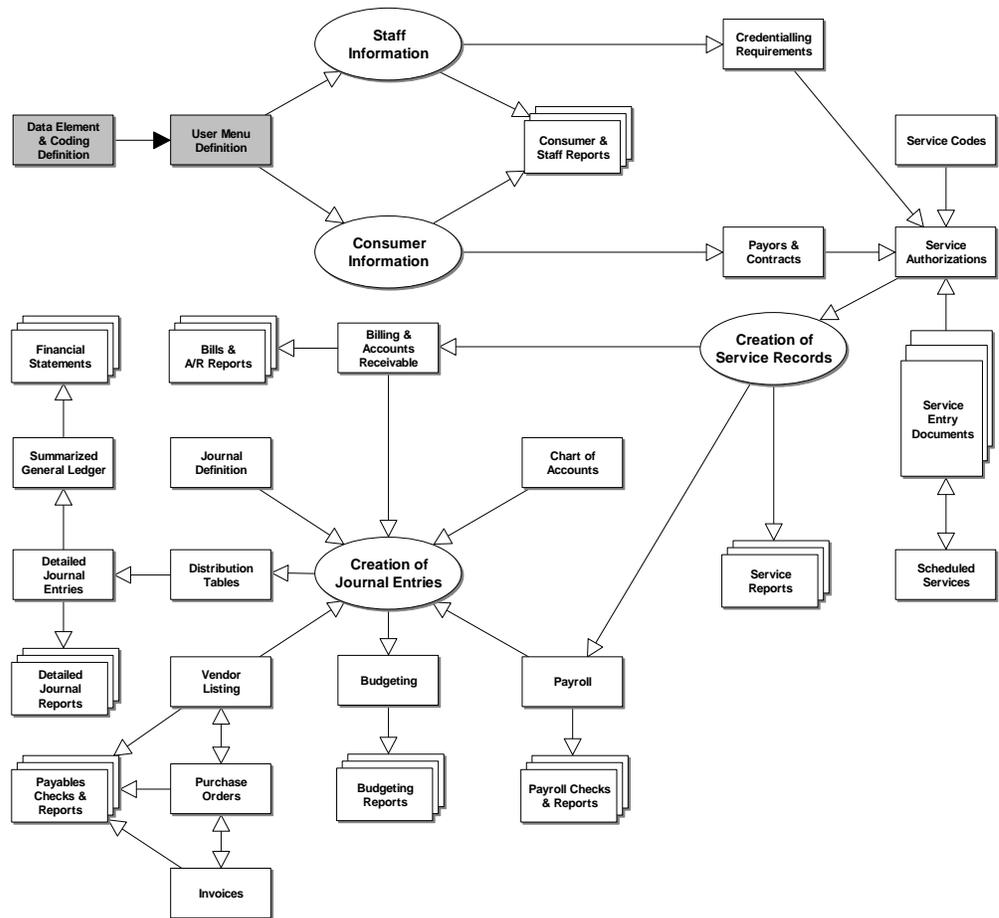
On-Line, Real-Time Operation

Ideally, a system should be an on-line, real-time system; as soon as a piece of information is entered in the system, it should be available throughout the system to any authorized user. If the system is fully integrated, users in one area (e.g., consumer accounting) will be able to access information from another area (e.g., intake, service entry) the moment the information is entered; there should be no need to wait for some additional process to "transfer" the information from one system component to another.

System Flexibility

One of the key characteristics of a behavioral health information system is its degree of flexibility. Because behavioral health provider organizations are not alike, their systems cannot be alike. Therefore, a system should allow each organization to create the structure required to meet its information needs. Organizations should be able to create their own data elements, data codes that limit the acceptable values for data entry, and menus to group related functions for users.

Behavioral Health Information System
Components & Functional Relationships
(Database Definition)



Data Elements & Codes

The key to the comprehensiveness of any information system is its database, the collection of all the data elements entered into the system. In other words, the scope of any system is limited by the data elements it contains.

The system should allow you to define the data elements you requires. The definition process (which shouldn't require programming changes or vendor intervention) should let each user organization tailor the system's content to meet its particular needs. In addition, new data elements should be able to be defined at any time to keep the system current with the changing needs of behavioral health.

Once data elements are defined, you should be able to limit data entry to certain values only (e.g., M or F for Consumer Sex, or valid DSM-IV values for Consumer Diagnosis). The system should allow you to create tables that identify acceptable values and link them to the appropriate data elements.

Screens & Menus

The system should let you group data elements and data codes into screens that emulate processes or forms within your organization (e.g., intake form, clinical records display, financial eligibility information). Access to defined screens should be facilitated (and controlled) by placement on user menus. Ideally, you should be able to determine which system functions should be grouped together and which users have access to each function.

Security & Confidentiality

Multi-Level

Any behavioral health information system should be secure from unauthorized access to sensitive information. The behavioral health information system should employ a multi-level security structure to afford complete control over system and data security. Typical security components include the following:

- **System Sign-On** — The system should require a user identifier and password to gain access to the computer at the operating system level.
- **Application Sign-On** — The system should require an additional user identifier and password to gain access to the information system application software.
- **Authorization Levels** — The system should let you assign an authorization level for each function and each system user. In order to be able to access a system function (or even see it on the screen in many cases), the end user's personal authorization level must meet or exceed the function's access level.

WHAT CAN AN INFORMATION SYSTEM DO?

- **Function Security** — The system should allow you to set separate levels of security for adding, changing, displaying, and removing information from data records.
- **Data Access Security** — Ideally, the system also allow you to identify security levels for each data element. Once a data element's security level is established, only users who are authorized with an equivalent or higher access level should be able to view the data element or access the data element through a report writer.
- **Menu Security** — The system should be able to direct each user to an individualized entry point in the system menu hierarchy.
- **Report Security** — The system should allow you to restrict viewing or printing of reports to either the individual who prepared them or to members of a group with comparable authorization levels (as defined by your organization).
- **Automatic Log-Off** — The system should automatically deactivate a user's session if that user has been inactive for longer than a pre-determined period.
- **Database Audit Trails** — The system should support database auditing that allows the system manager to determine which user made which changes to which data elements and when they were made.
- **Journal Entry Audit Trails** — The system should provide the option of including the user identifier within each financial system journal entry.

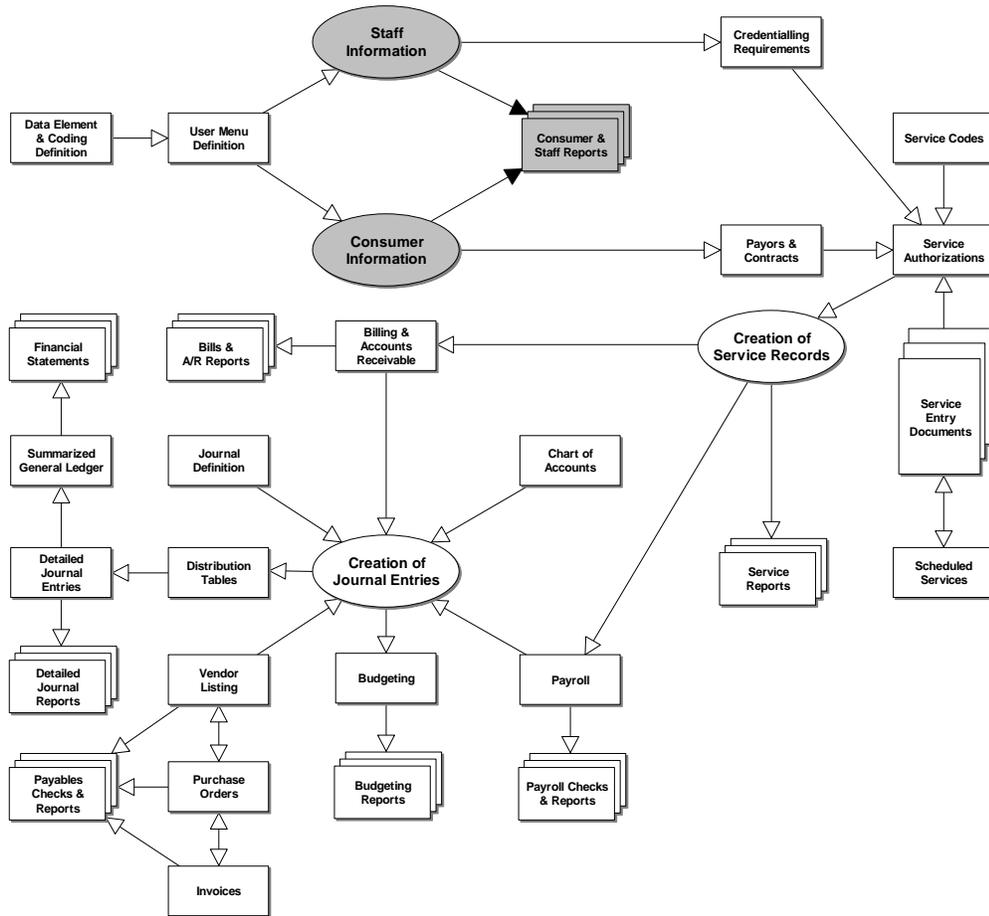
Consumer Information

Information related to the intakes, discharges and transfers of consumers throughout the system is stored in a Consumer Database. The system should facilitate the collection and monitoring of intake, discharge and transfer information through the features described in the section above entitled "System Flexibility," (i.e., definition of data elements, codes, screens and menus). You should be able to model the system to match your consumer information needs.

Data Entry Order

The system should provide you with the flexibility to structure consumer information capture to match either paper forms or on-line interviews. Information should be able to be captured in interviews in one order and printed out or displayed on clinical record forms and documents in another order. Thus, you should not be restricted in your information capture by the structure of paper documents or reports.

Behavioral Health Information System Components & Functional Relationships (Consumer & Staff Information)



Episode Tracking

The system should allow you to capture information related to a specific episode of care without creating a separate consumer record for each episode, thus maintaining a view of the continuity of care across a consumer's entire clinical history. You should be able to record information that is appropriate for a given episode of care without duplicating information that is constant across episodes. Services related to a given episode should be able to be billed together, without mixing them with services from other episodes.

Movement Tracking

The system should allow you to track consumer movement across programs, and throughout the organization.

Clinical Records Management

Most health care providers are required to track consumer progress to ensure that the consumer is improving as a result of the services being delivered. This is especially true with behavioral health, where consumers often require ongoing care for extended periods of time. For providers to be reimbursed for services delivered, many insurance companies and government reimbursing agencies require that written service notes be kept on file in the consumer's clinical record. Such service notes, sometimes called progress notes or case notes, serve as proof to the reimbursing entity that the services were delivered and that they were necessary and effective. It is not unusual for an insurance company or other reimbursing authority to audit for required service notes and request the return of fees paid for non-documented services.

The system should be able to support accurate clinical documentation through: (1) the database flexibility to ensure that all appropriate clinical (and staff) information is collected; (2) the ability to track all "key" service activity throughout the organization; (3) a process to emulate the complex managed care issues regarding documentation requirements (e.g., frequency, content, staff credentialing); and (4) a service note capture process that is fully integrated with items 1 through 3.

Clinical staff should have access to progress notes and treatment plan information as needed. The system should also let you monitor whether or not service notes have been completed. You should be able to run reports comparing services recorded to notes completed, and prepare lists of the notes that still need to be completed by your professional staff.

Staff should be able to review (subject to appropriate security authorizations) clinical and treatment plan information on their consumers from any device attached to the system. The system should minimize the need to track down physical records folders in order to know the clinical status of a consumer's treatment.

Staff Information

Information related to your organization's staff is stored in a Staff Database. The system should facilitate the collection and monitoring of general staff demographics, credentialing, payroll, human resources and other staff information through the features described in the section above entitled "System Flexibility," (i.e., definition of data elements, codes, screens and menus). You should be able to model the system to match your staff information needs.

Data Entry Order

As was the case with consumer information, the system should provide you with the flexibility to structure staff information capture to match either paper forms or on-line interviews. Information should be able to be captured in interviews in one order and printed out or displayed on clinical record forms and documents in another order. Thus, you should not be restricted in your information capture by the structure of paper documents or reports.

Service Tracking

As noted earlier, behavioral health organizations exist to provide care to people in need. Consequently, each service delivered becomes an important measure for looking at the organization. That fact remains true whether one's perspective is clinical, administrative, financial or operational. Therefore, one of the most important goals of any behavioral health organization should be to ensure that every service provided is both appropriate and accurately recorded.

Recording services correctly has been a problem for behavioral health organizations. A recent Part B Medicare audit of core outpatient behavioral health services conducted by the Office of the Inspector General found that "over one third of all services billed were medically unnecessary [23%], billed incorrectly [41%], rendered by people who were not qualified [11%], or were poorly documented [65%]." That's a tremendous problem and could carry major legal implications for provider organizations.

However, even if one disregards the potential legal impact of billing for inappropriate or inaccurate services (don't disregard it, by the way), there is still the financial impact of delivering services for which your organization cannot be reimbursed. The behavioral health industry is a generous one; it gives away a large number of services to people in need who cannot pay. Such generosity is behavioral health's great strength and one of its weaknesses. Behavioral health organizations will continue to give away services; nobody is challenging that fact. But it's probably appropriate for your organization to adopt a goal stating that you never want to give away any service that you didn't intend to give away.

Accurate service tracking is the key to achieving that goal.

The 11-Part Question

The basic service that needs to be tracked can be broken down into an 11-part question, as follows:

1. Who
2. received how much of
3. what service
4. from whom,
5. when,
6. where,
7. within what program,
8. reimbursable by what source of funds,
9. for what amount,
10. at what cost,
11. and with what effect?

Obviously, there are more pieces of information required to run a behavioral health organization, but if a system can track the above 11 items for all key activities, and tie them back to additional details about the total time available, the recipients of the services, the providers, and other important factors, you will be able to report most of what is required to run a behavioral health organization.

The diagram below expands upon the database flow chart presented earlier to show those system components involved with the tracking of services, the computation of service fees, and the assignment of a payer for reimbursement. It should be noted that the cell labeled “Creation of Service Records” is the repository of the “11-Part Question” information described above.

The Service Entry Document

I hate service entry documents!

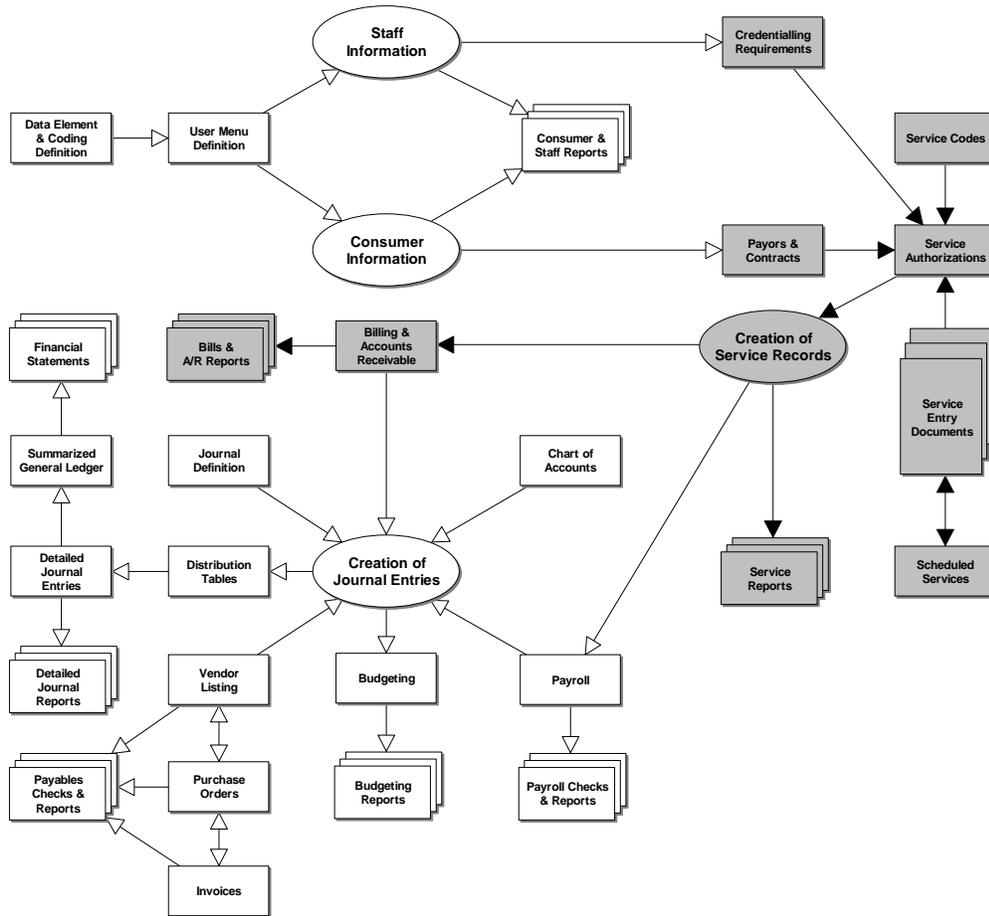
“Why are we even talking about this?” — “How can service entry documents be part of the solution when they feel like most of the problem?” — “Service entry documents are a pain!” — “They take too much time.” — “I have to write the same stuff over and over.” — “The information is never accurate.” — “The clinicians/bookkeepers/managers (circle the appropriate villain) are always complaining about them.” — “How am I supposed to remember everyone’s case number?” — “I fill them out, but never get anything back; what good are they to me?” — “The information is never entered into the system correctly, so I have to keep my own copies.” — “I thought computers were supposed to make things easier.” — “Did I mention that I hate service entry documents?”

Now that the air’s clear, can we get on with the business at hand?

Good.

The primary mechanism used to capture information about what’s happening in the organization is the service entry document. Service entry documents take a variety of forms, including a document designed to be completed by each appropriate staff member for each business day, individual transaction forms designed to capture information about a single service record, or a consumer-based procedure form that captures all of the services provided to a given consumer during the day.

Behavioral Health Information System Components & Functional Relationships (Service Tracking)



Tracking “Key” Activities

A system must track all direct, face-to-face services in order to bill. But billing isn’t everything (despite what the people in the finance office may say). Unfortunately, service entry documents are often used solely to capture billing information or to make people account for every minute of the day. As a result, the forms require a lot of busy work that doesn’t directly benefit the people completing them.

The concept of service can be expanded to include other important activities that occur throughout the day. Vacation time, sick leave, telephone contacts, meetings and other “non-direct” or “non-billable” activities should be able to be tracked with the system, especially if you expect to be able to use your system for computing costs of services or

WHAT CAN AN INFORMATION SYSTEM DO?

contracts. You should be able to determine just exactly which activities are “key;” the system shouldn’t presume to dictate what can or can’t be recorded.

A properly designed service entry process can provide the following benefits:

- **Reliable Information for Reporting** — The events created by the service entry document process are the ones that provide the answers to the 11-part question described above. Virtually everything used for basic behavioral health reporting and evaluation comes from the service entry document, and the information should be able to be extracted from the system through pre-formatted reports and report generators.
- **Centralized Scheduling** — A powerful feature of a well-designed service entry document is the use of scheduled events. Ideally, the system should be able to print scheduled events on the appropriate person’s service entry document for the day in question.

You should also be able to use the service entry document to account for group and family services. You shouldn’t have to plan a service for every member; you should be able to schedule an activity for an established group and the system should be able to print the name of each group member on the service entry document for the appropriate day. The service entry document can then serve as an attendance record for the group.

Scheduled events should make it possible to minimize the amount of information you have to write on the service entry document. In other words, the more you can schedule, the less you should have to write at the time of service delivery.

- **Document and Data Entry Control** — Ideally, the system should individually number each pre-printed service entry document, and the control number should stay with all activity on that document. Numbering of the documents ensures that all activities are accounted for and that information will be complete. The system should be able to regenerate lost or missing documents so that services never “fall through the cracks.”
- **Reporting of Accurate Staff Productivity** — As soon as services are entered in the system, you should be able to produce reports to help you monitor staff productivity (e.g., direct vs. indirect activity, outstanding service entry documents, services requiring progress notes, expected payroll activity).
- **Information Base for Quality Improvement** — Most quality improvement and assurance information is based upon the services that are delivered. Costs, utilization, productivity, effectiveness of treatment and other forms of analyses are all based upon the information in the services file created by the service entry process. Services data should be able to be linked to other consumer, staff and/or financial information located elsewhere in the system.
- **Time Accountability** — Productivity, costing and payroll computations require accounting for all staff time. Some systems require that staff record all time

spent during the day, and that the total time recorded match the normal payroll hours. Others automatically subtract the hours recorded in specific activities from the total hours worked and create an additional administrative activity for the difference.

- Payroll Timecards — With the addition of a few codes to account for indirect payroll related activities (e.g., vacation, sick leave), the service entry document process can handle payroll timekeeping, thus eliminating the need for separate timecards.
- Payroll, Service & Costing Consistencies — Well-designed service entry documents that capture all important activity that occurs throughout the organization can, through a single process, provide information for clinical accountability, service note tracking, treatment plan monitoring, billing and accounts receivable, payroll and service costing.
- Integrated Human Resources Functionality and Productivity Data — The records created by the service entry process should be able to be linked to Human Resources information entered elsewhere in the system. Thus, activities, productivity and costs should be able to be reported according to staff characteristics such as discipline, licensure, position category, or anything else in the Human Resources database.
- Database for Creative Compensation Plans — When key activity time and total time are linked to Human Resources information, the system should be able to support employee compensation agreements that are tied to staff productivity.
- Replaces Multiple Manual Work-Arounds — The service entry document should be able to eliminate manual work-arounds that are often necessary to track service plans and notes, accounts receivable, scheduling and payroll activities.

To summarize, the service entry document can have a major impact on the time required to account for the services and activities. When accurately completed, a well-designed service entry document is a powerful tool for controlling and managing a behavioral health organization.³

³ That is, if you let it. If you try, you can probably override all the above benefits by failing to schedule, not pre-printing the forms, having people complete service entry documents on an irregular basis, turning the forms in late, or any of several other behaviors that subvert the service entry document process. The result will be the continuation of the many manual lists, processes, audit reports and other work-arounds with which most behavioral health programs are painfully familiar.

Scheduling

Scheduling of services and other activities is one of the most useful functions of a behavioral health information system. There are a number of potential system features that are related to the scheduling process, including the following:

- **What's Happening** — The system should be able to provide a picture of what's scheduled to happen across the entire organization. At any point in time, you should be able to review all scheduled activities for a consumer or staff member.
- **Pre-Printing of Service Entry Documents** — Scheduled services should be able to be printed on service entry documents for appropriate staff, thus serving as reminders of activities that are scheduled for the day.
- **Easy Data Entry of Scheduled Information** — Services that are pre-planned and printed on service entry documents should be able to be entered into the system with the simple entry of a "resolution code" (e.g., occurred as planned, canceled, occurred with changes), thus minimizing potential errors that result from duplicative manual entry of data.
- **Automatic Rescheduling** — The system should also be able to reschedule services, thus eliminating the need to separately plan each occurrence of standing appointments meetings, or other activities.

Managed Care

The manner in which human services are contracted and reimbursed is undergoing significant change. The standard fee-for-service relationship between payer and provider is fast giving way to a complex variety of innovative contractual arrangements. This new set of non-traditional contracts has come to be known as *managed care*.

Managed care contracts offer the provider organization attractive financial incentives such as capitation or pre-payment, bonuses for meeting utilization goals, guaranteed volume, and differential tiers of reimbursement. However, most of these contracts include strict provisions regarding service pre-certification, and impose a variety of (sometimes burdensome) case review, reporting, and paperwork requirements upon your staff. In most cases, external third parties must regularly authorize initial as well as continued treatment in order to ensure accurate reimbursement.

Any behavioral health information system designed for managed care should provide a full range of functions to cover the entire spectrum of managed care operations, including consumer benefit verification and pre-certification, appointment scheduling, authorized services tracking and billing processes, service costing and claims reimbursement.

Following are some key areas that the information system should be able to address.

- **Service Authorizations** — Managed care contracts often require service providers to obtain approval from the payer before non-emergency treatment is rendered to the consumer. Such service authorizations range from the very general to extremely detailed, denoting specific services and amounts. The system should be able to accommodate and track multiple types of service authorizations, because non-authorized services generally aren't reimbursed.
- **Benefits Verification** — When scheduling an appointment for a consumer covered by a managed care contract, you want to be sure that the service will be reimbursed. Therefore, the system should have a benefits verification function that displays the consumer's eligibility information along with any specific treatment authorization information, including counts of service units authorized, co-pays and other limiting factors.
- **Managed Care Billing & Claims Reimbursement** — The system should allow you to prepare managed care billings at intervals appropriate to your payers and your organizational operations. The system should support recoding of procedures and diagnoses on bills to accommodate third-party managed care requirements without compromising the clinical style of the provider. Billing functions should be able to tie services back to original treatment authorizations. Finally, the system should also support automatic transfer and receipt of electronic claims and remittance information in a fashion that is consistent with emerging HIPAA requirements.
- **Contract Administration** — Contract Administration involves the tracking of benefit plan covered services, effective and lapse dates, global or yearly service limits, co-pays, riders, exclusions, salient procedures, and contact persons. The system should support entry and maintenance of multiple contract types treatment categories, rate schedules, consumer eligibility, benefit limits and warnings. Contract tracking and reporting should also be included to support timely management control and financial accountability.
- **Cost Analysis** — Forecasting the impact of managed care capitation contracts and confidently negotiating competitive rates requires that any behavioral health managed care information system be able to provide accurate service costs. The system should support allocation of all costs down to the direct service level and reporting of cost by meaningful variables, such as clinical outcome, diagnosis, episode of care or managed care contract.

Costing deserves to be singled out for further discussion. For the past quarter century, many behavioral health organizations have discussed the need for complete costing of services, but few have been able to achieve the results they desired. With the introduction of managed care, the need to have actual costs of services moved from being an academic issue (e.g., what are our unit costs?) to being one of organizational survival (e.g., given an observed length of stay and target population, is a given contract profitable or a money-loser?).

WHAT CAN AN INFORMATION SYSTEM DO?

If a system is fully integrated, it can potentially calculate the true cost of services delivered, and may be able to do so down to the individual service level. Such a system could tell you the costs for any particular service provided by a specific clinician to a specific consumer on a specific date.

Consumer Accounting & Accounts Receivable

Today's behavioral health organizations require detail-based, full function consumer billing and accounts receivable capabilities. The accounts receivable module should be fully integrated with the other components of the system. In fact, the integration in some behavioral health information systems is so "tight" that technically, there is no separate accounts receivable module, per se.

A behavioral health information system should be an on-line, real-time system. What that means is that users in consumer accounting and accounts receivable should be able to access information from admissions and service entry the moment the information is entered; they shouldn't have to wait for some additional process to "transfer" the information from one system component to another.

Multiple Payers

The system should not place a limit on the number of reimbursement sources a given consumer can have. Nor should the system impose arbitrary "primary," "secondary" and "tertiary" categories for reimbursement which vary from consumer to consumer and require extensive account analysis before payments can be applied. (For example: A single check from XYZ Insurance Company may be a primary payment for Consumer A, secondary for Consumer B and tertiary for Consumer C. Without analyzing each account, it can be difficult to process the check accurately.)

Preferably, the system should simply record which reimbursement sources each consumer has, what date range each is effective, and then track their billing priorities based upon system defaults and consumer-specific definitions. As a consumer's eligibility mix changes, the system should dynamically track the changes and apply the appropriate payer to each new event. When a payment is received from a third party, it should be immaterial whether the payer is "primary" or "secondary" for a given consumer. Payment application should be able to take place directly from the payer's Explanation of Benefits (EOB) without first analyzing each consumer's account.

Time-Dependent Rate Schedules

All fee reimbursement rate schedules should be time-dependent. In other words, when reimbursement rates change, those changes should be able to be entered into the system as soon as they are known (along with the dates they become effective). The old rate should apply for all services with dates prior to the new effective date. Services with dates on or after the new effective date should use the revised rate.

Electronic Billing & Payment Application

Federal requirements and the increasing complexity of reimbursement contracts have made the ability to bill for services and apply service reimbursements electronically a *sine qua non* for the healthcare industry; an organization must have the capacity in order to survive. Therefore, the system should support multiple forms of electronic bill submissions and electronic payment application processes that reduce the time required to bill for services and apply service reimbursements without sacrificing the reporting power that comes from detailed automatic journal entries.

Accounting Functions

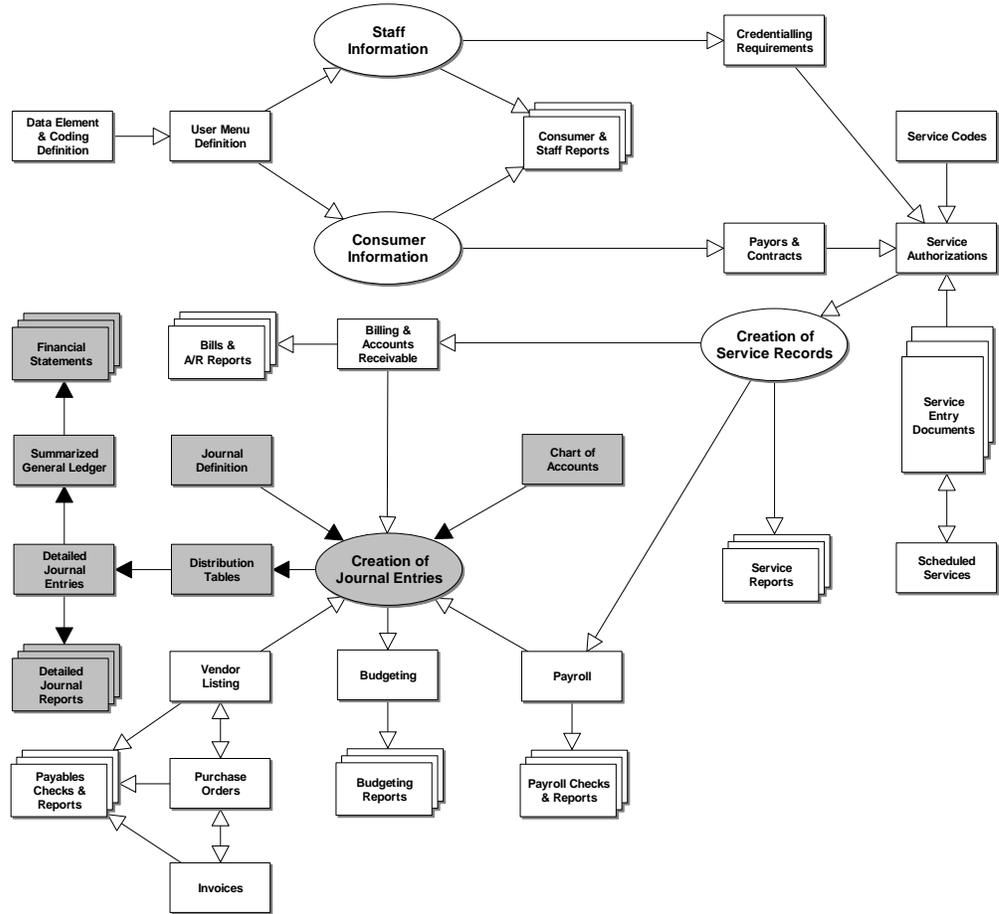
The general ledger and accounting functions should be fully integrated with the rest of the system. Ideally, general ledger data should not disappear after posting, at the end of the accounting period, or at any other time (other than when the user might choose to archive the data). Supporting detail should always be available for detailed analysis or reporting.

User-Definable

The financial component of the system should allow individual user organizations to define the content and structures of each of its components, including:

- **Organizational & Program Components** — Each user organization has a unique organizational structure that should be reflected in the system. You should be able to define your own organizational components within the system.
- **General Ledger Accounts** — You should be able to define your own chart of accounts within the system.
- **Journals** — You should be able to define accounting journals as appropriate to meet your accounting needs.
- **Distribution Tables** — To minimize the amount of manual data entry, you should have access to distribution tables that can be used to distribute dollars across multiple organizational components, account numbers or combinations of both according to defined percentages.
- **Financial Reporting** — The financial reporting features should allow users to format financial statements to match any normal format. Financial reports on postings-to-date should be able to be run at any time; you should not have to close an accounting period in order to report information from it. Ideally, you should not be limited to reporting on any particular periods. Financial reports should include accounting period information for any time period the user desires (e.g., fiscal years, grant years, calendar years, multi-year periods).

Behavioral Health Information System Components & Functional Relationships (Accounting)



Financial Applications

Other financial applications supported by some behavioral health information systems include Accounts Payable, Payroll and Budgeting.

Accounts Payable

As is the case with other system components, the accounts payable module should be fully integrated with the rest of the system. The system should be able to journalize all

accounts payable and cash disbursement transactions automatically without requiring manual entry.

The Accounts Payable system should support the maintenance of vendor files, accommodate purchase orders, track invoices, produce accounts payable checks and reports, and automatically create journal entries for the accounting system, using distribution tables as appropriate to allocate expenses as required by the user organization.

Payroll

Most behavioral health organizations use separate services or software applications for generating payroll. However, if a behavioral health information system has a payroll component, it should be able to compute employee wages, calculate taxes, withhold deductions, figure net pay amounts, produce paychecks, and support direct deposit. In addition, it should produce payroll journal entries, tax forms, and various reports detailing or summarizing current or Year-to-Date (YTD) payroll information.

Ideally, the system should be able to use information on services and activities already entered to generate payroll. Such an approach eliminates duplicate data entry and redundant timecards.

Finally, the system should be able to use staff and other information already entered in the system, thus eliminating the need for duplicate data entry and maintenance.

Budgeting

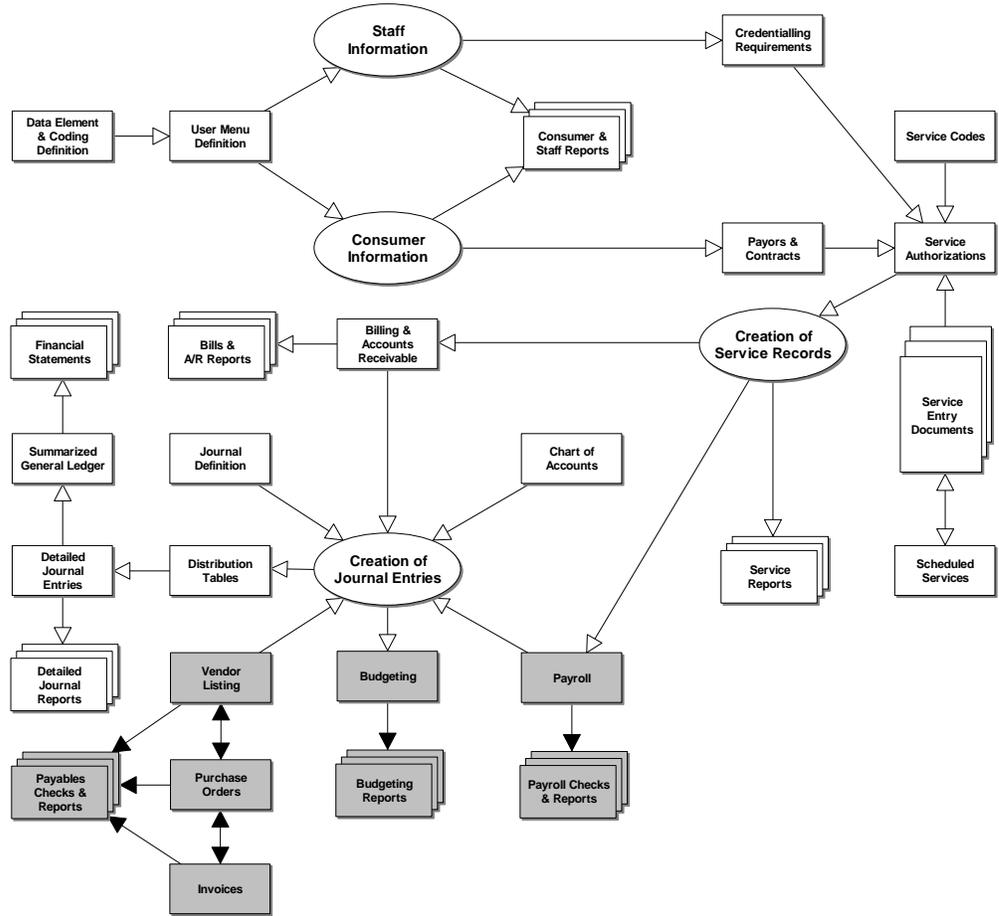
The structure of budgeting in behavioral health organizations is frequently dictated by external parties (e.g., funders, governmental behavioral health authorities). Therefore, the budgeting process is frequently carried out independently of the primary information system.

Some organizations operate under a philosophy that states, “If it’s important enough to record, it’s important enough to budget.” Such organizations might utilize multiple budgets, budgetary posting to the general ledger and detailed comparative reporting capabilities that are best achieved by a budgeting process that is integrated with the rest of the enterprise-wide information system.

Others organizations may simply require budgets prepared at a more summary level.

If you’re in the first category and plan to do dynamic budgeting, make sure the system you are considering contains the functionality you require. If you’re in the second category, you have more options (and you’re also luckier).

Behavioral Health Information System Components & Functional Relationships (Financial Applications)



WHAT CAN AN INFORMATION SYSTEM DO?

Health Systems Consulting

5

Evaluating System Vendors

*The race is not always to the swift, nor the battle to the strong,
but that's the way to bet.*

Damon Runyon

Choosing a behavioral health information system is a complex decision that deserves all the analysis you can afford to give it. The decision has two components — *product* and *vendor*. Surprising as it may seem to some, product is often the lesser of the two. After all, getting an information system is not the same as going into your local computer store and buying a copy of Microsoft® Office®. When you acquire a behavioral health information system, you are not buying a product; you are acquiring a business partner. You will be working very closely with your system vendor for years to come as your organization evolves and your system use matures.

Therefore, one of the key factors in choosing an information system is vendor evaluation. While initially secondary to software evaluation, vendor evaluation remains critical and should be a “frame of reference” for the entire information system selection process. Once you reduce your system options to a small number of software solutions, the issue of vendor viability becomes primary.

In other words, your task is to find several software *products* that appear to do the job at hand and then to select the best *vendor* in the lot. If no vendor is right for you, look for another group of products.

The Behavioral Health Information Systems Industry — Whether one likes it or not, the behavioral health information system business is a “mom and pop” industry. With very few exceptions, the vendors who have specialized in behavioral health are operating businesses that employ two to 30 people.

In addition, there are several “realities” to the industry that make it very different than running a grocery store or a gas station:

- **Labor Intensive** — The system business is very labor intensive. In other words, it takes a number of talented, experienced professionals to design, program, implement and support a comprehensive behavioral health information system. Those people aren't cheap. At least the right people aren't.
- **Technology Based** — System vendors need to make major investments in technology. You can't create and maintain an information system without a computer (or several). And old computers just don't suffice in a field as dynamic as this.

- **Irregular Cash Flow** — One lesson most information system vendors learn very early is the difference between revenues and cash flow. Revenues from system sales tend to come into a vendor on an irregular basis in large amounts (e.g., \$10,000, \$50,000, \$100,000, \$500,000) with “dry spells” in between. Unfortunately, the costs of running the vendor’s business continue through the dry spells, too. Maintenance and contract services are often structured to smooth the cash flow over the long run.
- **Cash Management** — Just because the money is in the bank doesn’t mean it can be spent. It may be committed to a computer manufacturer for hardware to be delivered in the future, or may be encumbered for some other service yet to be provided. If a vendor is undercapitalized or in a sales slump, there can be a great temptation to “rob Peter to pay Paul” by taking funds that should be encumbered and using them for operational expenses such as salaries.
- **Underfunded Marketplace** — The behavioral health field is traditionally underfunded and underpaid when compared to the private sector. Valid and justifiable service rates that in the industrial marketplace may seem cheap can sound outrageous to many behavioral health professionals. “\$125 per hour for training? That’s highway robbery!” It’s as if there were an unwritten rule that states, “If someone else charges more than I get paid, he’s charging too much.”
- **Word-of-Mouth Business** — The behavioral health industry is a “word-of-mouth” marketplace. Everyone knows (and talks to) everyone else. It is also a conservative field where people watch to see what the other guy does before committing themselves. If one customer has problems with a vendor (no matter whose fault it is), the vendor will suffer. Likewise, if a vendor consistently delivers sound products and services at a fair price, word will get around.

Trying to fit the above “realities” into a sound business operation is the challenge facing vendors of behavioral health information systems. Those who successfully produce and deliver a quality product can prosper. Those who cut corners and underdeliver will get out of the business. Which vendors are which isn’t always immediately apparent.

Behavioral health information systems is a tough league in which to play. In fact, it’s only in the past few years (very few) that there have been very many “real” players. Fortunately, however, there are companies that have built viable businesses within the industry and will probably continue into the future. In addition, new companies are on the way, some of which may become industry leaders, others of which will probably fail.

The game is still evolving; new rules are being written every day. For some vendors, the difference between profitability and loss may be as simple as whether or not he gets “that one big contract.”

What it all means is that you can’t simply go out and select the “biggest, baddest system vendor on the block” and feel confident about your choice. There is no General Motors of behavioral health vendors. All behavioral health information system vendors are small businesses in the eyes of the American marketplace. For that reason, the key factors of vendor viability relate to more than simply whether the products they sell appear to do

the job; you must also look into the structure and background of the vendors as businesses.

Business Stability

There is little to be served by entering into a partnership with a partner who won't be at your side in the future. Thus, you should seriously consider those factors that impact on a vendor's stability as a business and his ability to meet your needs over the long-term. There are a number of key components of a vendor's stability as a business and viability as a system provider that can be identified and evaluated, yet don't necessarily show up in vendor marketing materials, proposals and checklists. Before you make a system decision, you should consider the following:

Financial Position

Vendor financial strength is key to providing quality products and services. If a company is in poor shape, it will have difficulty providing high quality service after the sale. You need to find out where the vendor stands.

Will the vendor release financial statements? What about bank and credit references? What does a Dun & Bradstreet rating show?

If little is known about the company, should you consider having the portion of your moneys that is committed to the computer hardware placed in escrow? If the vendor is slow in paying its creditors, is it due to corporate policy or cash flow problems?

Structure & Ownership

What is the nature of the ownership of the vendor and what is his commitment to behavioral health? Is the vendor truly in the behavioral health business or has he "computerized a couple of behavioral health organizations."

Who owns the business? Is it a sole proprietorship, a partnership, a closely-held corporation, a public corporation or a subsidiary of another company? If a company is the brain-child of an individual, what happens if that person is no longer around? If spouses are involved, what happens in case of a divorce? If the company is privately held, how can you be sure it is financially viable? If it's a subsidiary, is the parent company even interested in behavioral health?

All of the above are key questions and the answers need to be reviewed carefully. But, like so many other factors, there is no "right" answer. You must evaluate how each answer affects your organization and incorporate that impact into your evaluation of the vendor.

Business Mix & Direction

What is the vendor's real business? Does he offer software to sell computer hardware? Does he offer other software products, behavioral health or otherwise? Is he seriously committed to the product(s) he offers?

Is the vendor likely to have his survival endangered by a slump in a single market, or is he so spread out that he can't (or won't) respond to changes in that single market? Is he somewhere in between?

Business Longevity

How long has the vendor been around? How long has he been serving the behavioral health industry? While not a perfect indicator of business viability, longevity in business is at minimum a measure that the company has made many of the correct decisions necessary to stay in business.

On the other hand, younger companies should also be given their due. Even Microsoft® was a fledgling company at one time. The information system business is still an area where one or two people with a "better idea" can come along and set the industry on its ear. It doesn't happen often, but it *does* happen. In the past, however, vendors of behavioral health systems have been notorious for being undercapitalized businesses developed around a "better idea" and the talents of one or two individuals. Unfortunately, business success is not always related to product quality. Some have survived long enough to make the transition from entrepreneurial venture to viable business; others have not. The jury is still out on the rest.

The question for you becomes one of whether it is an appropriate business choice to base critical decision support functions on a vendor who may be less likely to be around in a few years, even though he may have a better product today.

Facilities

The offices and the equipment of a vendor can tell much about both the vendor's business style and viability. Because the information system industry is technology-oriented, you should look toward the vendor's use of the technology he sells (e.g., computerization, word processing, office automation). Is the vendor working with current generation computer hardware? Are the computer areas clean and organized? Does the equipment appear to be well maintained?

On the other hand, don't be blinded by someone who simply has a nicer workplace than your own. Maybe the space isn't as expensive as it appears. In some regions of the country office space goes begging, in others it is at a premium. Therefore, consider the area when you compare one vendor's workplace to another.

However, if the facilities are overly fancy, ask yourself who is paying for them? Does the vendor have to pass his increased facility costs through to his customers in the form of higher prices, or are the costs absorbed through greater business volume?

The poor condition of the vendor's place of business may be a negative factor, but it doesn't necessarily follow that an especially fancy setting is a positive one. In other words, facilities can tell you more about whom you *shouldn't* work with than they do about whom you *should*.

Litigation

In this day and age, it is almost impossible to operate a business venture without being sued by someone at some point or another. However, if a vendor is consistently in litigation with others, it may be a signal of problems between the company and its customers. It may also tell you something about the vendor's business style.

Therefore, you should check into the vendor's background to: (1) see if the company is involved in any litigation; and (2) if there has been a pattern of litigation in the past.

Organizational Efficiency

Does the vendor practice what he preaches? After all, if a company is attempting to sell you tools to enhance organizational efficiency, it surely should have already mastered the art itself. Right?

One would hope so, but it never hurts to ask yourself a few questions as you deal with a vendor. Are telephone calls returned? Are messages lost? Are there ongoing clerical problems with billing, correspondence or orders? Are appointments missed? Are there continual technical problems? Does it *feel* like things are under control? Can you get prompt answers to your questions? Are you sure who has responsibility for what area? Do you even know who to ask for information? Does the vendor?

Organizational Size & Depth

Every vendor's staff has to serve a variety of functions — software development and maintenance, hardware configuring, marketing and sales, business management and other activities required to operate a successful systems business.

Larger vendors usually have the size and resources required to let each employee concentrate on his or her job. Their business management personnel don't spend their time developing software and their software maintenance people don't dabble in system sales. In addition, such vendors often have several people in each role, and don't become too dependent upon individual personalities. Thus, they can avoid the time traps that affect smaller vendors where a person's time is drawn away from a key function in order to fill in some other area that is inadequately staffed.

Other vendors are very small companies, heavily dependent upon the talents of one or two people. This "thinness" of staff is not advertised by vendors, and is often lost in the shuffle of trying to sell information systems.

While organizational size is certainly not a panacea for all that might go wrong with systems, it does remove some larger vendors from the world of "one programmer shops,"

operating only a heartbeat away from oblivion. While often not literally dependent upon one programmer, some vendors are technically spread very thin.

Reputation

You should also consider tapping into the word on the street regarding a vendor. An old saying says, “Where there’s smoke, there’s fire.” What that means to you is that a vendor’s reputation may tell you much about a company that doesn’t show up in a more “objective” or quantitative analysis.

There is a certain consensus of knowledge about how this or that vendor is doing. In a word-of-mouth industry such as behavioral health, hallway conversations and off-handed comments may tell you more about a vendor’s viability than all the technical information you can find. Therefore, when looking at a vendor, try to get a list of some (all?) of his customers and call around. You could even give competitive vendors a call, but the information from them may be less objective and more self-serving.

Business Style

Finally, you must evaluate how the vendor’s style of business fits with your own. Selecting a system that may not be “the best” from a vendor who shares your business style may be a better long-term decision than taking the top system from someone with whom you can’t seem to work.

Is a vendor consistently hard to work with? Are vendor-customer misunderstandings more the rule than the exception? Are there hidden extras that cost more money than planned? Do people like working with the vendor?

In making your decision, consider the following:

- Working Ease — Is it easy to get anything done with the vendor, or is each step a trial? Do you find yourself negotiating on the spirit of an issue or on the letter of the contract? How do you really *feel* about a vendor as a partner in a long-term close relationship?

If a relationship doesn’t feel comfortable and the chemistry just isn’t there, think very hard before entering into a business agreement.

- Enthusiasm — Is the vendor working to get your business, or is he simply responding as necessary? Are you getting the information you require on a timely basis? When you ask a question, do you get answers or excuses?

While an apparent lack of interest in your business may simply be a personality trait of a salesperson, it may also be indicative of a “corporate culture” that implies that a vendor doesn’t regard your business as important enough to get excited about.

Products & Services

Once the general business issues about the vendor are resolved, you need to ask yourself if the products and services provided by the vendor are consistent with those you require, or if the vendor is trying to fit you to what he sells?

Industry Specialization

Does the vendor specialize in the behavioral health industry? The question is an important one and you should know the answer.

It's always tempting for a naive vendor to make statements such as, "Service delivery is service delivery. You're just like any other medically-oriented business, except in one or two areas, and we can modify those functions to meet your needs." If you hear such a comment, proceed cautiously. Whether it represents a bad faith comment by the vendor just to get your business or simply a misunderstanding of the complexities of behavioral health, such statements usually lead to problems. The experiences of behavioral health organizations that have tried to implement another industry's software have usually been bad.

The issue of industry specialization becomes even more important when looking at system support. If a vendor has to "learn behavioral health" from you as he attempts to support your system, the quality of that support will suffer. The usual result? The vendor loses money. When the vendor loses money, he also loses interest and you end up with an unsupported system.

Software

Behavioral health software is specialized. It is not just another medical system; it is not just accounting. Outpatient behavioral health applications won't necessarily work in residential settings, or vice versa. In other words, a vendor should know the behavioral health field in order to evaluate your requirements and address them effectively.

You need to think about what you want. The options range from "turn-key" solutions where everything is ready to go the day it's delivered, to "do-it-yourself" approaches where you (or someone you pay) make the software match your organization. The options can be compared to getting a new house. You can buy a finished house and move in right away, or you can have a load of lumber and supplies dumped on a vacant lot and start building. Or something in between. You decide.

Vaporware

"Well, that feature doesn't exist yet, but we're working on it and you'll get it when it's finished." If you hear a statement like the above, be on your guard. Promised functionality is the lifeblood of the software industry. Often the functionality is delivered; often it isn't. Check the vendor's delivery track record in past situations.

Whether or not you think the feature will be delivered, you shouldn't base any part of your software (or vendor) evaluation on missing, undelivered or "in-test" functionality.

System Design Parameters

The incorporation of key features in the design of an information system can greatly enhance the power and acceptability of the system within a behavioral health organization. If designed into the system, certain parameters can increase access to the system by non-technical staff, and increase ease of use and overall system performance.

A comprehensive system for behavioral health organizations should be designed with the following principles in mind:

- **Completeness** — The system should address the entire operation of the behavioral health organization, including consumer tracking and billing, financial operations, organizational and funding structures, case management, payroll, and staff productivity.
- **Integration** — The system should have a high degree of integration. Redundant data entry should not be required. Any issues relating to centralized or distributed systems should be transparent to the user. The system should allow appropriate access by all users, whether local or remote.
- **Compatibility** — The system should be compatible with existing systems and procedures operating within the organization. Existing personal computers should be able to access all system information, and should be operable as stand-alone computers for other applications (e.g., word processing, databases, spreadsheets).
- **Responsiveness** — The system should be responsive. Users should not be frustrated by waiting for record access or reporting for extended period of time. The entire system should be available to all users at all times (subject, of course, to security provisions), irrespective of what function any operator is using.
- **Expandability** — The software and hardware of the system should be expandable. The behavioral health organization should be able to continue to use the system during periods of organizational growth and expansion. The hardware should be configured to handle reasonable growth, and also be upwardly compatible with larger machines, should large-scale expansion be required. The software should accommodate additional functional modules.
- **User-Friendly Operation** — The system should be easy to use. Functions should be selected from menus, and all commands and prompts should be in everyday English. When you wish to add, delete or edit data in the system, you should be able to do so with simple commands.
- **Table-Driven Technology** — The system should be table-driven; that is, user-modifiable tables should contain many of the items that define the system content. Thus, a computer programmer should be unnecessary to make the system meet organizational needs. As requirements change, internal staff should be able to perform necessary system changes.

- On-Line Operation — No matter what hardware configuration is selected for the behavioral health organization, the system should operate in a terminal (or personal computer) environment that supports simultaneous on-line access for all users.
- Complete Security — All input and output should be under the protection of a sophisticated security and confidentiality system that precludes unauthorized access to system information. Complete security is especially important with systems where multiple programs and staff may be using the same computer and software.
- On-Line Edit Checking — Keeping inappropriate information out of a system is easier than deleting or correcting it once in. Therefore, all data entry should be monitored by on-line software edits to ensure completeness, validity and reliability.
- Report Generators — The system should allow the user to prepare report formats that meet reporting needs exactly (e.g., consumer productivity, job costing). Once created, the formats should be able to be saved for re-use or modification to meet changing needs.

By relying upon a combination of certain basic fixed format reports and strong report generators, the system should satisfy organizational needs without burying the user under piles of unwanted “standard” reports. If operators can design their own reports, the central administrative office can be relieved of the responsibility of programming reports that have to “meet everybody’s needs.” However, as reports are defined that may be useful throughout the system, they should be accessible to all users.

- Reduced Paperwork — To the extent practicable, data recording should occur at the time and place of activity or service delivery. The integration of the system should reduce the need for existing procedures that can result in the creation and distribution of numerous manually prepared paper documents for other interested parties. The system should allow appropriate staff to access key information on a “need-to-know” basis.
- On-Line Assistance — Because no one can be expected to remember all the possible codes for each data element in a system, user-definable help messages and the code values for any element being entered should be displayed on the terminal screen at operator request.

Comprehensive Software Applications

Does the vendor offer a comprehensive selection of software to address the wide ranging needs of the behavioral health organization? Are all components part of a single software package, or can you select only those applications you need? Will the applications meet needs in both the business and program areas of your organization?

So much for questions about the vendor. Now for the really tough questions — the ones about you. Do you require software for a number of areas or do you need a consumer tracking and billing only? Are integrated financial components necessary, or can you get by with the financial approach you have now? Is having treatment plans on a computer key to your survival, or do you simply think it would be “neat” to have? What software modules do you really need?

All of the above questions (and probably a number of others) must be answered before you can effectively compare a software vendor’s offerings to your requirements.

Hardware Options

What brand(s) of computer equipment does the vendor recommend? Does he offer a full range of systems, including small, medium and large computers? Can his software run on all of them?

The computer industry is a volatile one. Companies appear with “better ideas” and lots of glossy advertisements, and then are never seen again. Other firms are created, evolve and die in a matter of months. New developments make last year’s (month’s?) machines as obsolete as the slide rule.

You should consider several points when evaluating a vendor’s hardware suggestions:

- Stand-Alone and Networked Personal Computers — Personal computers are amazing, inexpensive and may be just what you need. They don’t do everything, however. Stand-alone personal computers are limited in those situations where more than one person needs simultaneous access to the computer and the information it contains.

Personal computers, for the most part, were designed as single-user “personal” computers. As they became more used in business environments, numerous software developers created “networking” software to allow several personal computers to interconnect and share programs and files. Many personal computer advocates then began to tout the “network solutions” as the answer to the personal computer’s inherent limitations. However, despite what you may have heard, networked personal computers may not be the solution to all your needs.

Although similar in appearance at first glance to multi-user systems, networks differ in one fundamental way. Personal computer networks are often designed to share applications among users who have *separate data* (e.g., word processing, spreadsheets). Multi-user systems, on the other hand, are designed to provide multiple users with access to *centralized (or common) data* and applications (e.g., accounting and payroll data, consumer histories).

Even the terminology tells the story. Networks use a central “file server” to send copies of programs and other files to users who request them. Multi-user systems, on the other hand, use a “central processing unit” (CPU) to handle the computational needs of multiple users.

In effect, the network file server acts as a lending library, finding a copy of the program or file the user wants and sending it *outward* to the user to do with it what he or she pleases. Once the file is “checked out,” the file server has no further contact with the file until the user returns it to the “library” for storage.

The multi-user CPU is more like a research library which houses original collections and makes them available to individuals for examination in the library itself. All the resources for study are available centrally, books, periodicals, films, documents, photocopy machines, library assistants, . . . you name it. If you need access to the library’s holdings, you can get it. But you don’t borrow a Gutenberg Bible to take home any more than you borrow a copy of your general ledger for personal use.

Neither the network nor the multi-user system is “better” than the other, any more than a lending library is “better” than a research library. But they *are* different. Networks send *programs and files out*; multi-user systems send *data in*. Which do you need?

Networks are preferred when individual users have separate data files, as is the case in word processing applications. Multi-user systems are more appropriate if individual users are sharing the same data files, as is the case in organization-wide accounting applications.

Operating a personal computer network with a centrally-oriented system may result in an overworked file server (trying to handle everyone’s computational needs) and underworked personal computers (waiting for the file server to do the computations they were originally configured to do).

It is important to understand that if you already have a number of personal computers that you would like to interconnect in a common information system, that does not necessarily mean that you need a network. Networks and true multi-user computers can use personal computers as individual workstations.

Therefore, before making a decision, you need to review your own requirements. Make a list of everything you want your system to do, forgetting for the present how you want it to do it. Then ask yourself some questions.

Do you primarily need shared applications for separate data or shared access to common data? What types of systems are available for the software that meets your needs? Which type of system is more costly today? Tomorrow? Three years from now? What is the cost of expanding the system later? Which approach is more flexible? Will one approach require more technical support than another? If so, who’s going to support it?

Get answers to these questions first. Then, and only then, make your decision.

Networked personal computers do offer a potential solution for some organizations. However, it is important not to let any particular equipment technology dictate what should be a software decision.

- **Multi-User Computers** — It may come as a shock after looking at personal computers at your local computer store to have a vendor tell you that you should buy a \$25,000-75,000 computer. You may need the larger machine, however, depending upon your anticipated system needs.

Although the line of demarcation between large and small computers is getting fuzzier all the time, larger machines still tend to offer more power for complex software applications. They are usually designed for simultaneous operation by several (or many) users and are engineered for “production” environments where hard and continuous use is the rule.

There is often a certain “let-down” that occurs when you move to multi-user computers. Because they are not consumer-oriented products, much multi-user software is less flashy than the personal computer software products that compete for your attention like soap powders on a supermarket shelf. The effect (usually false) is that you are paying more for multi-user applications, but getting less.

The difference between a multi-user computer and a personal computer is similar to the difference between a table saw and a jig saw. Both cut wood, and you can probably make just about the same things with either saw. But if the job involves a great deal of cutting through heavy wood in short periods of time, the jig saw is not the answer.

So if your requirements include simultaneous access to large amounts of data, complex interactive reporting and large amounts of data entry, be prepared to look seriously at a more powerful (and probably significantly more expensive) multi-user solution. One benefit of most multi-user systems is that they allow you to connect your existing personal computers as terminals. Thus, you have both additional access to a centralized, multi-user computer-based system and local, personal computer based processing (e.g., word processing, spreadsheets) — the best of both worlds.

Hardware Compatibility

If you acquire a software package to do one job will you be able to find other software for other jobs that will still operate on the original hardware?

As computers evolve and software developers realize the benefits to be achieved through offering their programs on multiple brands of hardware, certain “industry-compatible” trends are emerging. Software vendors are pushing toward the greatest amount of “hardware independence” they can achieve. After all, the more computers that support a software package, the more opportunities there are to sell that software.

Most compatibility occurs at the operating system level; a program that runs under the UNIX operating system on one brand of computer might be expected to run under the same operating system on another machine.

Whether or not compatibility is of major concern to you, you should be aware of the potential benefits or pitfalls that the subject holds.

Hardware Support

Another hardware evaluation issue is hardware support. If the computer never had problems and always did the job, you probably wouldn’t care if your system were running on a “red box” or a “blue box.” Nor should you.

Unfortunately, computers do have problems once in awhile. Therefore, you need to know what degree of support is available for the computer you install. After all, an inexpensive solution without support is no solution at all.

One thing to be aware of is the tendency of some support groups to refuse to service a Brand A computer that contains Brand B components. So be sure that you know who makes *all parts* of your system, not just the main computer.

Hardware Expansion

Yet another issue to consider is growth. What happens when you want to add more capacity to your computer? Can you do it, or will you be told, “*Brand X* just introduced a new computer, but you’ll have to modify your software to run on it,” or “We don’t sell *Brand X* computers any more, but would you like to buy a new *Brand Z*?”

Remember that in selecting a behavioral health information system you are making a conservative business decision, and shouldn’t be swayed by a glib salesperson or a glossy brochure. All the marketing “flash and dash” in the world won’t help you get your bills out when you outgrow your system.

What it all boils down to is the notion that you should select computer hardware for the long run. Choose a vendor who uses equipment that is nationally known, has a service network with *prompt* response and allows you options for growth (*without having to reprogram your software*).

Remember, however, that the hardware is not the major decision to be made. The software is the *sine qua non*. Only after you find solutions to your software needs should you consider which box runs it.

Hardware Distribution

There are many different arrangements that allow a vendor to offer both software and computer equipment to his customers. He can purchase the equipment from any of a number of sources, including another vendor, a distributor or directly from the manufacturer.

In most cases, the best approach for the vendor is to become an authorized dealer of one or more brands of computer equipment. To do this, he must meet certain criteria established by the manufacturer that specify minimum volumes, support requirements, product knowledge and discount structures.

Generally speaking, equipment discounts the vendor receives from the manufacturer range from 15% to 45%, depending upon the brand of hardware. When you figure that half or more of a system purchase price may be due to hardware, you begin to see the impact hardware sales can have on a vendor's "bottom line."

If a vendor is not an authorized dealer for the hardware, it may be because he either doesn't come up to the manufacturer's business standards or doesn't sell a high enough volume of equipment to qualify. Therein could lie a clue to the vendor's business strength. Not only may he not have enough sales volume, but because he must purchase hardware through another dealer, his margin per sale may be less, thus further reducing his financial viability. However, it may also be because the margins on computer hardware are getting so small and the compatibility of various brands getting so similar that it just isn't worth the vendor's time and effort to try to become a middleman.

Implementation & Support

Ongoing vendor support for a behavioral health information system is critical. You will be living with your system and vendor choices for a long time to come, and you will require the vendor's support in a variety of areas, each of which will be discussed in further detail below:

- **Training** — Your staff must receive training in both the operation and uses of the system. Ongoing training for new staff should be available.
- **Advisory Services** — In addition to formal training, additional consultative or advisory services should be available to help you with policy and procedure development, forms design, use of information for decision making and other issues you will encounter.
- **Documentation** — The system must be documented in a form that can provide answers to questions that may arise during its use.
- **Software Support** — The software should be supported by the vendor. There should be a mechanism for fixing “bugs” that are uncovered in the software. (Yes, you will find “bugs” in the programs.) New updates and releases of the software should be available.
- **Hardware Support** — The computer hardware should be supported by the vendor, the manufacturer or a third party.
- **User Groups** — One of the best sources for support is other users of the same system. Most well-established information systems have organized groups of users who share ideas, solutions and talents.

Training

It used to be the case that most commercial behavioral health information systems could be operated by non-technical personnel with no prior knowledge of computers. The only “technical” staff required was a system manager who was responsible for the overall implementation and operation of the system. However, while there may still be variability among vendors, in this day of LANs and WANs, firewalls, VPNs and the Internet, most behavioral health organizations will require technically-qualified staff to implement and manage a comprehensive information system. While vendors should provide all necessary orientation and training in the operation of their systems, a solid technical knowledge base should be a prerequisite for the system manager.

The training package for the system should be comprehensive and thorough. Given the structured approach of some systems, extended periods of on-site time by the vendor's staff may not be required for successful implementation. With other systems, more customized training efforts may occur at the beginning of the project, with less vendor intervention required down the road.

In any event, the following training components are typical of the level of training a vendor should provide for your staff:

- **Orientation** — Before you begin to use the system, an orientation session should be held for appropriate program and administrative staff where the vendor provides a general overview of the system design, its operation and the functions it performs. The session should be designed to help all users understand what the system means for them, as well as to allow them to ask whatever questions they may have about the system and its operation.
- **System Manager** — Your system manager should receive comprehensive training prior to the system's installation. Topics discussed should cover the full range of issues related to system installation, implementation and operation.
- **Data Entry Staff** — Training can be provided to all personnel responsible for the data entry, quality control, and data retrieval functions.
- **Other Staff** — A training session might be appropriate for clinical staff who will be creating and using data in the system. Financial management and personnel staff can also be given an orientation to the proper use of the appropriate sections of the system. Finally, training can be provided to administrative and research and evaluation staff in the use of routine system reports as well as the use of any special report writers.

Training Format — The format of training can often be customized to meet the unique needs of your organization. Training sessions can be “classroom style” in the vendor's offices, “individualized” at your site or a combination of both. No two organizations are identical and the same training approach will not be appropriate in all cases. The training package should be tailored to your needs, not the vendor's.

Both the classroom and individualized approaches have their benefits and drawbacks. Some of them include the following:

- **Classroom Training Benefits** — Classroom training at a vendor's site gives you fixed curricula and the opportunity to share information with trainees from other organizations. You also have access to more people on the vendor's staff and the vendor can select different trainers for different topics. You are away from your office, so you won't continually be interrupted.
- **Classroom Training Drawbacks** — If you want to train a number of people, you have to pay to get them there. You have less of an option to train a person in one or two functions of the system. Once in the class, you usually stay from beginning to end. There is less time for concentrating on your unique needs, as you are not usually the only organization present.
- **Individualized Training Benefits** — You only have to pay for the trainer's expenses, even if you want to train a number of people. You can train a person in one or two functions of the system, letting that person go back to work at other times. Things get done your way and in the context of your organization's needs and wants.

- **Individualized Training Drawbacks** — Individualized training at your site can sacrifice the tested content of a fixed curriculum. You also preclude the opportunity to share information with trainees from other organizations. You sacrifice access to people on the vendor's staff other than the trainer, who may not be the best person for all portions of the training. You're in your office, so you run the risk of getting interrupted.

Training tends to fall into two broad categories — (1) training related to the system, per se, and (2) training related to your implementation of the system. Classroom style courses often work better for the first type. Individualized training works better for the second. Therefore, you should consider sending your system manager to any available courses about the system. In addition, if possible, you should arrange for the system manager and other appropriate staff to receive individualized on-site training in the implementation of your system.

Training Costs — Training costs are often a hidden expense in implementing your system. Some vendors include attendance at training courses as a part of the software license fee. Others price everything a la carte, letting you decide the amount and content of training. With a la carte systems, training costs may be a significant portion of the total system price.

About the only thing upon which all vendors seem to agree is that you will be billed for all travel and related expenses for their training staff (if they come to your site) or your staff (if they go to the vendor's place of business).

Don't get caught in the game of saying, "This vendor's training is free and that vendor charges an arm and a leg." The cost of training shouldn't keep you from selecting a particular system. Remember, nobody is trying to "rip you off." It's in a vendor's best interest to get your system operational as quickly and easily as possible and different vendors have different ways of accomplishing that.

Don't shortchange yourself when it comes to training; plan and budget for more than you think necessary. If you don't need the additional assistance, that's fine. If you do, it's covered in the budget.

Advisory Services

The key to any effective system is implementation. System success depends as much upon the decisions made regarding its implementation as upon software and hardware. There is little point in investing significant resources in acquiring a system without also making a corresponding investment to ensure its success.

Experience has shown that those organizations that take system implementation most seriously are the ones whose systems most effectively meet their needs. In fact, it is not unusual to find neighboring behavioral health programs that selected the same information system experiencing very different degrees of success. In one, the system works well; in the other the system is little more than useless. In both cases, the hardware and software are the same. The only difference is the organizational preparedness, and that is the target of advisory services.

The Advisory Services Function — During implementation, it is often helpful to have the vendor (or another outside party) function as your consultant, providing whatever services are required. Activities might include review of your input documents and advice on how to effectively match the system to your forms and procedures, reviewing your needs as they relate to required state reporting, or meeting with governing board members and reviewing progress to date.

It may also be helpful to have someone work with you after system installation to assure that your implementation is proceeding according to schedule, ensure that appropriate people are assigned to key tasks, reinforce skills learned during training, review progress on your overall system goals and suggest alternative actions to correct any discrepancies.

Some vendors will offer additional advisory services, others will not. Some will tell you that their training will answer all the questions. Others will refer you to outside consultants or system users for advice. No matter what the methodology, be prepared to secure additional advisory services as required to get the job done correctly.

What's the bottom line? If you're setting up a complex system, you should probably plan to contract for additional advisory services, preferably on an as-needed basis. Few behavioral health organizations have the staff, resources or talent required to handle everything involved in implementing a comprehensive information system as well as it could be done. Selected advisory resources can be used to focus on specific tasks (e.g., policy and procedure development) and can keep your implementation on schedule. An advisor can also help stretch your resources in a temporary fashion. After all, it's probably fair to assume that nobody is going to do your other work while you try to solve problems in implementing your system. If you use additional outside talent to facilitate the process, it will leave you more time to do what you were hired to do in the first place.

What About Cost? — It isn't unreasonable for the advisory services budget to be a significant part of the total cost of the system. Budget for the advisory services expense, even if you don't contract for it. The money will then be there if you need it.



Dilbert © United Features Syndicate

Sorry, ... couldn't resist it.

Documentation

Any comprehensive information system must be fully documented if you are to be able to utilize its features effectively. The following types of documentation should be included with your system:

- **System Manager's Materials** — System manager's materials document the principles underlying the system structure and operation, and provide the background necessary to undertake implementation and overall operation of the system.
- **User Documentation** — The User Documentation should provide a detailed keystroke-by-keystroke description of the steps required to execute each function of the system.
- **Technical Documentation** — Technical documentation regarding the structure of the system, appropriate file layouts and interfaces, data content and relationships should be provided with the system.

Some vendors may customize the system documentation to meet your needs; others may not. You should be sure that the vendor will update your documentation as the system changes through new releases, so your system documentation is always current with system enhancements and changes.

Documentation is one of the least loved activities of software developers, and behavioral health vendors are no exception. Make sure the system you select is fully and adequately documented. Nothing is more frustrating than trying to solve a software discrepancy in a system lacking documentation. Don't automatically accept a vendor's assurances that, "That portion of the documentation is being rewritten and will be sent out later."

There is no better method to be sure the documentation exists than to look at it yourself. You may have to sign a "non-disclosure" statement before the vendor will give you a copy to review, but that's a small price to pay.

Software Support

Ongoing support of the system is possibly one of the most valuable investments you can make. Most vendors should offer comprehensive software support and maintenance services designed to keep your system implementation in "top shape." If one doesn't, you should think long and hard before seriously considering his system.

Vendor system support usually takes the following forms:

- **Software Warranty** — In many cases, the system is backed initially by an automatic warranty period after acceptance. Typical warranty periods range from no warranty at all to as much as one year. What that means is that if you detect a problem with the system during the warranty period, the vendor will fix it at no charge.
- **Software Maintenance** — Software maintenance, on the other hand, is an "extra-cost" item that usually begins after the warranty period ends and lets you

extend indefinitely the same coverage you receive under the warranty. Many vendors will support any system installation with “warranty-level” service as long as it is covered under a software maintenance agreement.

How Software Maintenance Works — If you experience a problem with the system, you contact the vendor’s support staff to report it. The vendor should help identify the specific nature of the problem and then should resolve the situation as appropriate. If software corrections are required, the modified programs may be transmitted over the telephone or Internet, made directly on your computer, sent to you by courier or simply included with the next system update.

Is Software Maintenance Worth It? — Software maintenance isn’t cheap, usually running up to several thousand dollars per month for comprehensive systems. What does that buy you? A variety of software support and maintenance services are available under vendor software maintenance agreements:

- **Updates and Modifications** — If you have acquired a standard system from a vendor (as opposed to one with much custom modification), the vendor should provide you with all modifications made to the standard system package, including all modifications made to the software since the previous update.
- **Correction of Software Malfunctions** — In the event that you encounter an apparent malfunction in your system software, the vendor’s technical support staff should isolate and correct the problem.
- **Technical Assistance from the Vendor** — Some vendor’s maintenance programs offer more extensive telephone support for users of the system. Through toll-free (sometimes) telephone lines, their support personnel can help you with any problems encountered during normal operation of your system.

Forms of Maintenance Plans — Vendors have taken a variety of approaches in implementing software maintenance programs. Some require that you maintain the software or lose your software license. In such situations, software maintenance is usually referred to as a “License Support Fee.” Others simply state that maintenance is recommended, but not required. Still others offer several levels of support so you can tailor your support to your needs.

Finally, most vendors will also provide maintenance services on a “time-and-materials” basis, usually billed at an hourly rate. What you’ll find, however, is that it doesn’t take very many hours to add up to the normal monthly maintenance fee.

There is another catch to time-and-materials maintenance. Systems evolve over time and software changes occur. Should you maintain your system on a time-and-materials basis and only correct identified “bugs,” you could someday find yourself in a very expensive trap. Should you encounter a problem with a portion of the software that is no longer supported by the vendor (due to system improvements in that area), you might first have to pay for the vendor to upgrade your system to the current release and then still possibly have to pay to fix the bug.

Vendors generally will not upgrade your system for less than what the cost would have been for maintaining your system under standard maintenance to the current release, as such an approach would undermine their existing maintenance programs and would place their other customers in the position of subsidizing your maintenance.

So what should you do? The implementation of a comprehensive behavioral health information system is a demanding task that requires a close working relationship between you and your vendor. The effort required to integrate an information system into an organization is significant, with most of the work and decision making occurring in the first six to twelve months after initial installation. When fitting a new computer system to an complex organization you should have all the resources possible. For these reasons, you should consider contracting for full software maintenance for your system during at least the first year after installation.

Over the long term, you will have to judge the value of software maintenance for yourself. Talk to other users of the system to get their experiences. What do they get for their money? Do they think it's worth it? Is it worth more? Less?

Hardware Support

Whether you like it or not, your computer will occasionally "break." Your car does. Your television does. You do. So will your brand new, fancy, expensive computer. Luckily, however, most computer problems can be remedied quickly and cheaply through hardware support programs.

Ongoing hardware support is usually categorized into the areas of hardware warranty and hardware maintenance. The following guidelines describe the nature of the warranties and maintenance available for most computer hardware:

- **Hardware Warranty** — Computer hardware is sometimes covered by an automatic warranty period. If you detect a problem with the computer during the warranty period, the manufacturer (or his representative) will fix it at no charge. Hardware warranty periods vary greatly depending upon the type of device, manufacturer and nature of installation, and can range from no warranty at all to a full year from installation. Some warranty and maintenance services are provided on-site; others are carry-in or return to the factory. Make sure you know which you are getting *before* you sign a contract.

Certain manufacturers' computers do not include separate hardware warranties, and in such cases we strongly recommend that they be placed under a hardware maintenance agreement immediately upon their successful installation.

- **Hardware Maintenance** — Beyond any warranty period, most computer manufacturers will, under a separate hardware maintenance agreement, repair or replace at no additional cost to you any covered hardware component that fails during normal operation of your computer. You can expect monthly hardware maintenance rates to be about ½% to 1½% of the purchase price of the equipment (e.g., \$500-\$1,500 per month for a \$100,000 computer).

Some software vendors require their users to contract for manufacturer's hardware maintenance if they intend to contract for vendor maintenance of the software. Their rationale is that before they spend time trying to track down a reported software problem, they want to be sure that the hardware is well maintained and probably not at fault.

Your vendor usually becomes involved in hardware maintenance issues only when a problem cannot be identified as being hardware-specific. In such cases, their staff may work with your computer manufacturer's representatives to determine whether the problem is with the hardware or with the software. Correction of hardware malfunctions is usually the responsibility of your computer manufacturer; resolution of software problems is the vendor's responsibility.

Preventive maintenance is a responsibility you share with your computer manufacturer. Under most maintenance contracts, some preventive maintenance may be carried out by your computer manufacturer's personnel. However, routine tasks such as cleaning some filters may be your responsibility.

Unless you have a formal organizational program to self-insure assets, you should maintain your computer under a hardware maintenance agreement with either the manufacturer or a reputable third party. Your system shouldn't fail often, but when it does you want it to be fixed quickly and without additional expense. Hardware maintenance is getting cheaper as equipment becomes simpler and more reliable, and is a bargain when you consider the troubles you could encounter without it.

If your system uses less expensive terminals and printers, it may be more cost-effective to forego maintenance on them. Should one fail, get it fixed at a time-and-materials rate or, if cheaper, simply replace it with a new one. Some peripherals are so inexpensive that you may want to buy an extra to keep on the shelf in case one fails.

Remember, when you have a service agreement you have priority. Without a maintenance contract you will probably be served at the vendor's next convenient opportunity, and always after those customers who have service agreements.

User Groups

Some vendors support and encourage independent organizations designed to foster communication among system users. At user group meetings, vendors frequently address issues raised by users and announce new system developments and enhancements.

User groups vary in structure and size from vendor to vendor. Those vendors whose systems tend to vary little from user to user can have larger, well-organized associations, as the commonality among the users and the mutual benefits to be derived from the group are greater. Vendors whose systems vary from site to site and who customize each installation will probably have less influential user groups.

Ideally, a user group should run itself. Naturally, the vendor should support the group's efforts, but if the vendor runs the group there is a good chance that the needs served will be the vendor's, not the users'.

EVALUATING SYSTEM VENDORS

Look around at the user group for each vendor. Call the vendor and get the names of the officers. Call a few members to find out how the group operates. Learn what it's like to work with the vendor over a long period of time.

A Quick Vendor/System Checklist

On the following pages are several sets of questions designed to help you quickly evaluate up to three system vendors according to the guidelines outlined above. Some points are more important than others, so each question is followed by its relative weight in parentheses. The checklist isn't a "sharp enough tool" to make a final system decision, but it can help you rule out vendors that might not be appropriate matches for your organization. Any final decision on an information system should be based upon a more thorough evaluation process such as a formal Request for Proposals (discussed in a later chapter).

To complete the checklist, simply ask each question of each vendor you are considering. If the answer is "Yes," give that vendor full value for the question. If the answer is a qualified "Yes," reduce the score accordingly. If the answer is "No," give that vendor a score of zero for that question.

When you have completed the entire checklist, add the scores to get an overall vendor score. (Best possible score is 1,000 points.) Then ask yourself which vendor appears to be the best potential business partner.

Business Stability

| | A | B | C |
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| Financial Position — Is the vendor a stable organization with a sound financial history? (45) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Business Structure and Ownership — Is the vendor an independent corporation free of the influence of a parent firm? (15) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Business Mix and Direction — Has the vendor specialized in your industry and focused exclusively upon meeting its needs? (30) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Business Duration — Has the vendor been in business at least five years? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Facilities — Does the vendor maintain a true business environment (e.g., business offices dedicated to the software instead of a home office or one where the software is only one of several activities)? (10) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Litigation — Does the vendor have a history free of ongoing customer complaints, conflict and litigation? (25) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

EVALUATING SYSTEM VENDORS

Business Stability

Organizational Efficiency — Is the vendor internally automated, making use of the same level of technology being offered to you? **(20)**

Organizational Size and Depth — Is the vendor large enough to maintain an internal division of labor where staff can focus on specific activities instead of having to “do it all?” **(30)**

Reputation — Is the vendor’s reputation a positive one among your peers, with a history of delivering on both the details and the spirit of commitments? **(30)**

Business Style — Is the vendor easy to work with and enthusiastic about obtaining you as a customer? **(25)**

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Business Stability Subtotal (250)

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Products & Services

Industry Specialization — Does the vendor sell to behavioral health organizations only? **(25)**

Software — Is the software both specialized and modular so you can acquire only the applications you need? **(20)**

“Vaporware” — Is the vendor honest about features and functions that aren’t yet available (“vaporware”) when representing the software? **(25)**

System Design Parameters — Does the vendor’s system generally appear to conform to customary system design parameters? **(20)**

Completeness — Does the vendor offer a complete software solution for behavioral health organizations? **(20)**

A B C

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Products & Services

Integration — Are the components of the vendor's system fully integrated to avoid redundant data entry? **(25)**

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Compatibility — Is the vendor's software compatible with the normal operation of a behavioral health organization and commonly found office computers? **(20)**

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Responsiveness — Is the vendor's system responsive, with all functions simultaneously available to appropriate users? **(25)**

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Expandability — Are the vendor's software and hardware capable of being expanded to accommodate organizational growth? **(20)**

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User-Friendly Operation — Is the vendor's software menu-driven and easy to use? **(25)**

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Table-Driven Technology — Is the vendor's software table-driven and user-controlled so programming modifications aren't required as your organization changes? **(25)**

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On-Line Operation — Does the vendor's system support simultaneous on-line access for all users? **(25)**

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Complete Security — Does the vendor's system support a multi-level security system under the control of the user organization? **(30)**

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On-Line Editing — Does the vendor's system support on-line software edits? **(15)**

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Report Generators — Does the vendor's system allow the user to prepare report formats that meet reporting needs exactly? **(20)**

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Reduced Paperwork — Does the vendor's system provide for data recording to occur at the time and place of activity or service delivery (given an appropriate equipment configuration), thus eliminating the need for batching of data entry? **(10)**

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EVALUATING SYSTEM VENDORS

Products & Services

Comprehensive Software Applications — Does the vendor offer a comprehensive selection of software to address the needs of the behavioral health organization? **(40)**

Brand Name Hardware Options — Does the vendor offer systems on nationally known “name brand” equipment instead of lesser-known “house brands?” **(10)**

Stand-Alone Personal Computers — Can the vendor's software operate on single-user personal computers (e.g., Windows-based machines)? **(10)**

Networked Personal Computers — Can the vendor's software operate on computer networks? **(15)**

Multi-User Computers — Does the vendor's software operate on larger multi-user computers using a well-known standard operating system? **(15)**

Hardware Compatibility — Is the vendor's software compatible so that it can operate on a wide variety of multi-user computers using industry-standard operating systems? **(15)**

Hardware Support — Does the vendor offer hardware configurations that are supportable anywhere in the country in case of problems? **(20)**

Hardware Expansion — Does the vendor offer hardware configurations that can be expanded to accommodate your future growth? **(20)**

Hardware Distribution — Is the vendor an authorized dealer for the equipment he offers? Does the vendor “know” the hardware in question? **(5)**

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Products & Services Subtotal (500)

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Implementation & Support

Classroom Training — Does the vendor offer classroom training at the vendor's site? **(20)**

On-Site Training — Does the vendor offer individualized onsite training and implementation assistance? **(20)**

Advisory Services — Does the vendor offer additional advisory services to assist in system implementation? **(15)**

System Manager's Guide — Does the system include complete system manager's documentation? **(20)**

User's Guide — Does the system include complete user documentation? **(20)**

Technical Documentation — Does the system documentation include technical information (e.g., file structures and layouts)? **(15)**

Software Warranty — Is the software backed up by a warranty period during which all problems will be remedied at no additional cost? **(15)**

Software Maintenance — Does the vendor offer a multi-level ongoing software support program? **(20)**

Software Updates — Does the software support program include regularly scheduled updates and modifications at no additional cost? **(20)**

Software Corrections — Does the software support program include correction of software malfunctions at no additional cost? **(20)**

Telephone Support — Does the software support program include unlimited telephone technical assistance and support at no additional cost? **(20)**

Hardware Warranty — Is all vendor-supplied hardware backed up by a warranty period during which all problems will be remedied at no additional cost? **(15)**

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| Classroom Training — Does the vendor offer classroom training at the vendor's site? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| On-Site Training — Does the vendor offer individualized onsite training and implementation assistance? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Advisory Services — Does the vendor offer additional advisory services to assist in system implementation? (15) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| System Manager's Guide — Does the system include complete system manager's documentation? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| User's Guide — Does the system include complete user documentation? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Technical Documentation — Does the system documentation include technical information (e.g., file structures and layouts)? (15) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Software Warranty — Is the software backed up by a warranty period during which all problems will be remedied at no additional cost? (15) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Software Maintenance — Does the vendor offer a multi-level ongoing software support program? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Software Updates — Does the software support program include regularly scheduled updates and modifications at no additional cost? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Software Corrections — Does the software support program include correction of software malfunctions at no additional cost? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Telephone Support — Does the software support program include unlimited telephone technical assistance and support at no additional cost? (20) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hardware Warranty — Is all vendor-supplied hardware backed up by a warranty period during which all problems will be remedied at no additional cost? (15) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

EVALUATING SYSTEM VENDORS

Implementation & Support

Hardware Maintenance — Is an ongoing hardware maintenance program available for all vendor-supplied hardware? **(20)**

User Group — Does an independent User Group exist for the software? **(10)**

Implementation & Support Subtotal (250)

Total Scores

Business Stability Subtotal (250)

Products and Services Subtotal (500)

Implementation & Support Subtotal (250)

VENDOR GRAND TOTAL (1,000)

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6

Selecting an Information System

Whoever desires to make any model or design for the vaulting of the main Dome of the Cathedral under construction by the Opera del Duomo — for armature, scaffold or other thing, or any lifting device pertaining to the construction and perfection of said cupola or vault — shall do so before the end of the month of September. If the model be used he shall be entitled to a payment of 200 gold Florins.

*Request for Proposals
Brunelleschi's Dome (Florence, Italy)
August 19, 1418*

You now know what an information system is, what it should be able to do for you, and what to consider when evaluating system vendors. You even know a few of the common mistakes others (certainly not you) make in implementing their systems.

So now what? After all, you can't just go out and buy a behavioral health information system at your local computer store.

If you're going to spend significant resources on an information system, you should consider having all parties interested in providing the system propose their solutions within the context of a formal Request for Proposals (RFP)⁴ designed to assess: (1) their ability to accomplish the task at hand; (2) realistic costs and schedules; and (3) plans for ongoing system maintenance and training. Without such information provided in a common (or at least comparable) format, you will have difficulty making objective comparisons among proposed solutions.

⁴ There are actually three related types of documents that can be used for selecting information systems:

Request for Proposals (RFP) — The RFP is a detailed document for assessing the best value for the organization from among a number of comparable (but not identical) responses to a set of purchase criteria outlined by the customer. The RFP process is discussed in detail in this chapter. Most of the general principles discussed for the RFP also apply to the RFI and the RFQ.

Request for Information (RFI) — The RFI is an abbreviated version of the RFP designed to elicit preliminary system and pricing information from potential system vendors. The RFI is less detailed both in its listing of system requirements and in its expectations of vendor responses. The RFI can quickly capture general information about a vendor's products, services and pricing, and is frequently used to: (1) assess the feasibility of an information systems project; and (2) limit the field of potential vendors to whom a formal RFP will be sent.

Request for Quotation (RFQ) — The RFQ is usually reserved for situations where the customer knows the exact product he wants and multiple vendors offer the exact same product. The RFQ usually contains a detailed description of the desired product and asks for little other than pricing and delivery information. An RFQ may be appropriate for some computer hardware decisions, but has little application toward the acquisition of behavioral health information software.

Is an RFP Really Necessary?

It's your call. Some organizations are required to issue an RFP for any procurement that exceeds a certain dollar amount; other organizations can spend any amount of money on whatever they want. But even if you have no restrictions on the process you use to acquire an information system, you should still consider preparing an RFP for the reasons cited below.

Benefits of the RFP

There are several key benefits to the RFP process:

- **Clarity & Protection** — Problems that occur during the procurement of information systems can often be traced to poor communication between the customer and the vendor. Without a clear RFP process it's possible for the customer to assume that the vendor is offering a customized solution specific to the customer's unique needs, while the vendor assumes that the customer is buying the general product that the vendor offers. More than one system has failed because everybody assumed.

A clear, unambiguous RFP will help prevent such misunderstandings. Both the customer and the vendor will understand the other's expectations, and both will be able to go into the procurement process feeling confident about the match of vendor solution to customer problem.

- **Consistency Among Vendors** — Every vendor's system is different, as is every vendor's approach to the behavioral health marketplace. A clear RFP will ensure that, no matter what the vendor's philosophy and product, you will receive responses to your requirements that are consistent and comparable among the vendors who respond.
- **Accountability** — Unless you're spending funds out of your own pocket to procure a system (which we doubt), you'll need to have a clear and auditable process that shows that the decisions you made were informed, responsive to the documented needs of the organization, and appropriate to the information that was available. A well-structured RFP and objective evaluation process will provide the audit trail required.

Guiding Principles

There are several important principles that you should adopt for your RFP process:

- **Be Fair** — Remember, the RFP is designed to help you find a business partner; it is not a process for you to play "gotcha" with system vendors. Be open in your process so that all qualified vendors have an opportunity to respond to your requirements and tell you what products and services they have.
- **Be Honest** — If you've got issues that will affect your procurement process (e.g., if you can't spend more than a certain amount), include that information in

the RFP). Remember, in any project there are three characteristics that determine how the job can be done — scope (i.e., how much you intend to do), quality (i.e., how well you intend to do it) and cost (how much the job will cost). As the customer, you get to pick any two; the vendor picks the third. In other words:

Any given customer scope and quality determine the vendor cost.

Any given customer scope and cost determine the vendor quality.

Any given customer quality and cost determine the vendor scope.

The more information you give vendors, the better the responses you will receive. Honesty is not the same as giving a vendor *carte blanche*, however. You still need to require that vendors provide detailed and itemized pricing of products and services so you can compare the cost-effectiveness of multiple vendors' responses.

- Don't "Wire" the RFP — Above all, don't "wire" the RFP so it fits the offerings of one vendor over others. If you really prefer one vendor's products and you're sure there's no better value for your organization, you should probably invest your efforts into developing the justification for a "sole source" procurement, rather than forcing both your organization and the vendor community through a lengthy and costly RFP process, the results of which are pre-determined.

Sole Source Procurement

Sole source procurement may be acceptable in some situations, but before you spend a large amount of money on a behavioral health information system in a non-competitive environment you will need some strong justification for why you made the decision to go ahead. If there really is an overriding reason why one vendor's offerings should be accepted over alternatives that might emerge through a competitive RFP, you should have no difficulty in making your case. However, if you find yourself having difficulty explaining just exactly what one vendor has above all others, then you should abandon the sole source route and adopt the RFP process.

Usually there are tight restrictions on when you can do a sole source procurement using funds that have any connection with public monies, and people get upset when those restrictions aren't followed to the letter. Therefore, you should always take the conservative pathway when limiting large acquisitions to a single source.

Two words of advice when considering a sole source procurement — BE CAREFUL!

Preparing the RFP

Once you've decided that an RFP is appropriate for your procurement process, the detailed work begins. The selection of the most appropriate information system is a difficult task, and is very different from a system decision in the primary health or acute care hospital field. Therefore, an RFP for such a system should incorporate the specifics of behavioral health services in addition to the technical issues of computers and software. Try to create a straightforward framework for accurately transferring your organization's system requirements into a comprehensive, unambiguous RFP that can be evaluated quickly and objectively.

Steps in preparing the RFP include:

- **Requirements Analysis** — The first step in the process should be an analysis of your information system requirements based upon a strategic information assessment of your organization. Your existing systems and procedures are probably the end result of a large number of arbitrary decisions, made by a variety of people, over an extended period of time, in response to multiple situations, using then-available technology. Your requirements analysis should not be geared toward automating what you've got; it should guide you through an honest and objective review of your current and future needs.
- **RFP Development** — Once you know your requirements, you should create an individualized document that clearly and thoroughly outlines your organization's unique needs. At a minimum, the RFP and supplemental materials should include: (1) a list of mandatory requirements that will eliminate weak vendor software packages; (2) specifications for the new system; and (3) identification of computer functionality by location within your organization.
- **Proposal Evaluation** — You should develop a methodology to compare cost vs. functionality in scoring vendor responses to the RFP. The evaluation, which should include assigned weights for key factors (e.g., cost, support requirements, software functionality), will provide an objective and defensible model for selecting the system that represents the "best overall value" to your organization. Prior to receipt of any vendor proposals, the evaluation matrix should be documented, certified and dated to avoid any potential questions about the objectivity of the evaluation process.

Sections of the RFP

A well-constructed RFP is structured around three types of information. First, it tells prospective vendors exactly what you are seeking through the procurement. Second, it asks each vendor for specific information that will help you make your decision, including vendor responses to software functionality checklists. Third, it provides “housekeeping” information that outlines a specific structure for the vendor’s response and includes details of the procurement process itself.

“Telling” Information

The following “telling” sections are appropriate for a behavioral health information system RFP:

- **Philosophy of the RFP** — Tell the prospective vendors how you are approaching the procurement process. If you’re expecting vendors to jump through hoops for you, say so. If on the other hand, you are seeking a long-term business partner (the approach we recommend), say so.
- **General Instructions** — Describe your procurement project and the rules by which you intend to operate. Include, at a minimum, information on the following:
 - **Purpose of the RFP** — Explain the reason you are doing the procurement in the first place.
 - **Project Coordinator** — Identify the individual who will be coordinating the RFP process.
 - **Project Timetable** — Outline a timetable for the key steps in the procurement process and any subsequent system implementation.
 - **Method of Bid Presentation** — Describe the type of vendor presentation you require (e.g., number of copies, sealed bid).
 - **Oral Presentations and Demonstrations** — If you plan to require vendor presentations, say so and provide an approximate timeframe.
 - **Site Visitations** — If you plan to conduct visits to the vendor of any of his customers, say so.
 - **Level of Effort Expected** — Clearly explain what you expect the vendor to include in his response.
 - **Type of Cost Proposal Desired** — Identify the type of bid you expect (e.g., fixed price, cost plus, purchase, lease).
 - **Economy of Presentation** — Don’t ask for more than you need to make a procurement decision. Identify for the vendor the minimum acceptable response.

- Incurring Costs — If you don't expect to underwrite any vendor costs in the preparation of a response, clearly say so.
- Customer Requirements — This is the section of the RFP where you describe in detail what you're trying to accomplish. Remember that you're trying to select a business partner to help you achieve your goals, so the emphasis in this section should be on trying to provide a complete description of your plans and objectives (and limitations).

We recommend that you operate an open RFP process and endeavor to function as informally as possible, given the procurement policies under which you operate. You should encourage vendors to communicate freely in an effort to describe their products and services. However, all communication should be directed to an identified Project Coordinator you designate. If a vendor makes contacts outside formal channels, it may be indicative of an untrustworthy business style, and you might want to reconsider doing business with that vendor.

- Statement of the Task — Briefly describe what you are trying to achieve through the RFP (e.g., acquire a “turn-key” behavioral information system). Be sure to describe which applications you want to install (e.g., clinical, financial, operational).
- Current Hardware/Software Inventory — If you have existing computer equipment that might be useable in a new system, be sure to list it.
- Type of System Envisioned — Describe what you want to achieve with the new system and indicate and preferences you might have (e.g., enterprise-wide implementation, single vendor preferred, no developmental software).
- Equipment Specifications — If you have specific preferences about equipment, state them here. Be conservative when stating your preferences. Quite frequently we see organizations that arbitrarily define specific technologies and thereby preclude otherwise qualified vendors from bidding on their projects. Sure, you may be familiar with or prefer this or that operating system or reporting capability, but don't state it as a required specification unless you simply cannot accept anything else. A vendor may have a better approach to your problem, but won't be able to tell you about it because he doesn't “meet your specifications.”

Remember the old adage — “You can ask for my help or you can tell me what to do ... but not both.” It's an appropriate description of the vendor's point of view.

“Asking” Information

The following “asking” sections are appropriate for a behavioral health information system RFP:

- **Company Background** — This is the section of the RFP where you want to get some idea of “who” the vendor is and whether he qualifies as a potential business partner for your organization.
 - **Company Overview** — What is the vendor’s organizational structure? How large is the vendor? Does the vendor understand the unique requirements of behavioral health?
 - **Customer Base** — What is the vendor’s current customer base? How many current customers are behavioral health organizations? How large are their systems?
- **Software** — This is the section of the RFP where you want to capture information about the software being proposed by the vendor.
 - **Proposed Software Functionality** — What application functionality is included in the proposed solution?
 - **Application Packages** — What application software package(s) does the vendor propose to meet the customer needs outlined in the RFP?
 - **Software Support Provisions** — What software maintenance and support does the vendor propose?
 - **Software Enhancements & Upgrades** — What are the vendor’s methods and guidelines for enhancement and upgrading of the proposed system?
- **Training & Implementation Support** — This is the section of the RFP where you want to get an understanding of the vendor’s training and implementation support provisions.
 - **Staffing** — What staffing levels does the vendor maintain for training and support of the proposed system.
 - **Customer Training** — What types of staff training are available and what are the associated costs?
 - **Implementation Support** — What types of implementation support does the vendor provide?
- **HIPAA Compliance** — The Health Insurance Portability & Accountability Act of 1996 (HIPAA) is one of the most significant factors to affect the behavioral health industry in recent years. HIPAA affects almost everything an organization does and requires certain information system capabilities in order to be able to bill for services and communicate behavioral health data.

- HIPAA Compliance Plans — What are the vendor’s plans and schedules for complying with HIPAA?
- Hardware — This is the section of the RFP where you want to get some information about the support of the hardware proposed by the vendor.
 - Equipment Maintenance Provisions — What hardware maintenance and support does the vendor propose?
- Software Functionality Checklists — This is the area of the RFP where you should provide a thorough review of the needs and functions the system you require. If you have a specific feature or function you require, make sure it’s listed in one of the checklists.

“Housekeeping” Information

This is the section of the RFP where you outline a specific structure for the vendor’s response and state the details of the procurement process itself.

- Organization of the Proposal — This is the section of the RFP where you define the structure of the vendor proposals. Having a defined content and order will greatly assist you when you are evaluating competing proposals from multiple vendors. An appropriate order might be:
 - Letter of Transmittal
 - Vendor Background
 - Proposed Software Descriptions
 - Training and Support
 - Hardware Descriptions
 - Hardware Maintenance
 - Additional Services
 - Cost Proposal
 - Sample Contracts
 - Supplementary Materials
- Requirements & Conditions of Bidding — This is the section of the RFP where you define the mechanics of your acquisition process.
 - Proposal Due Date — We recommend that you schedule a fixed date and time that all vendor proposals are due. There’s little point in scheduling the deadline for the end of the week, unless you’re going to work over the weekend. Why not set the end of the business day (i.e., 5:00PM) on a Tuesday? That will give the vendors an extra weekend to work on preparing the most responsive proposal they can, plus a day for getting it to you.

You’ll have to think carefully about how you want to enforce this and other deadlines. On the one hand, you want to be as fair as possible to

everyone involved. However, it does you little good to reject a qualified proposal that may represent your best value simply because it arrived a few minutes after your deadline.

- **Bid Opening** — State a specific date and time that you will open vendor proposals and begin the evaluation process. You should not accept additional proposals after you have begun to open and review any vendor proposals.
- **Rejection of Proposal** — You should reserve the right to reject any and all proposals and award a contract to the proposal that is in your organization's best interest.
- **Proposal Duration** — State the period for which you expect vendor proposals to remain valid (e.g., 90 days after proposal submission).
- **Contract Negotiations** — You should reserve the right to negotiate an acceptable contract with the selected vendor. If you intend to require penalty payments for late delivery of hardware and/or software, state it here. You might also state your expectation that the prices quoted in the vendor's proposal are the lowest and best prices offered on the equipment and supporting application programs.
- **Bid Evaluation** — Describe the process you will use to evaluate vendor proposals. Don't try to play games here; simply say what's important and tell how you will make your final decision.
- **Vendor Confidentiality** — Is it appropriate for you to acknowledge that all proposals, documents and other materials submitted by vendors are for your organization's use only, and will not be released to individuals not involved in the evaluation unless required by public domain or freedom of information statutes.

Identifying Potential Vendors

There is a wide range of choices for behavioral health information systems, and you may actually find that one of the lesser known vendors offers a cost effective solution for your needs. In order to find the "best" solution for your organization, as many qualified vendors as possible should be considered for the information system project.

- **Vendor Identification** — As a first step, you should review the marketplace for potential behavioral health information system vendors. One good place to start looking for potential system vendors is through SATVA, the Software and Technology Vendors' Association. SATVA began in 1999 as a meeting between leaders of major behavioral health software and technology companies. Two years later, SATVA was officially incorporated as a not-for-profit trade associa-

tion. All vendors with behavioral health products may not be members, but most of the major vendors are part of the association.

SATVA's mission is to promote the use of technology solutions, help formulate and support industry standards, and facilitate the delivery of more efficient and effective care. The association is involved in a number of projects designed to improve data standards and related policies and to raise the general level of understanding about the value and uses of information technology for behavioral health and human services.

Information about SATVA and its members is available at:

<http://www.satva.org/>

- **RFI Release** — Once you have compiled a list or potential vendors for your system, you should contact each of the them to determine their interest in your project and compile a listing of those best suited to meet the your needs, including names, addresses and contacts, the number of systems installed, dates when system implementations began and one or more reference sites for each.

Such information is easily obtained through the release of a brief Request for Information (RFI) that provides basic information about your requirements and requests limited vendor responses, including general system capabilities, implementation plans and estimated budgetary guidelines. The RFI responses should then be used to further limit those vendors who will be asked to respond to the RFP.

Distributing the RFP & Collecting Responses

Once the RFP is complete and potential vendors are identified, you will need to distribute the RFP to the approved list of vendors and coordinate the collection of vendor responses.

This phase of the RFP process contains the following steps:

- **Distribute the RFP to Approved Vendors** — You should distribute the RFP to the selected vendors. Organizations typically have formal procedures for large acquisitions. If yours does, RFP distribution should be handled according to your prevailing policies.
- **Conduct a Bidders' Conference** — In most cases, you should consider conducting a bidder's conference to describe your project and organizational needs, and also to answer questions from vendors about the RFP process.
- **Collect & Distribute Vendor Proposals** — Once vendors' proposals are received, you should distribute the proposals to appropriate review staff process for their evaluation.

Reviewing RFP Responses & Selecting a Vendor

State-of-the-art behavioral health information systems often appear similar in function and price. Often, a final system decision is based more on intangibles such as vendor reliability and company direction than on the more “obvious” issues of hardware and software. The review of RFP responses and selection of vendor proposals has several steps:

- **Preliminary Evaluation** — You should review the vendor responses to the RFP and conduct a preliminary evaluation of the proposals based upon the evaluation criteria. This is where a structured evaluation matrix comes into play. Having such an objective evaluation matrix allows a direct functional comparison among the leading system alternatives.
- **Selection of Finalists** — Once you have reduced the potential vendors down to a small number, you should select finalists who will be invited to interviews. At the conclusion of this phase, you should inform each vendor of his status in the selection process.
- **Interviews of Vendor Finalists** — You should consider having a system presentation conducted by each vendor finalist where the strengths of each proposal can be addressed and the major features of each system shown in the context of your organization’s environment.
- **Reference Checking** — What about references? Almost any vendor worth his salt can provide a listing of three or four customers who think he is wonderful. However, not every reference site may be appropriate to you. The typical vendor-customer relationship is complex, with its share of positives and negatives. Customers who claim a vendor “can do no wrong” may lack the sophistication to evaluate a system effectively. On the other hand, a reference that claims that “things couldn’t be worse” is probably also misstating the true situation. The best approach is to contact several current system users to determine how they are using the system, how they feel about the system and the level of support they are receiving from the vendor.
- **Selection of a Vendor** — You should complete your review of the vendor responses to the RFP and formulate your final recommendation.

System Demonstrations

An excellent forum for evaluating a system is a vendor demonstration conducted where the major features of his system can be shown in the context of your environment. Traditionally, such demonstrations have been held either at the vendor’s office (expensive for you) or on-site in the prospect’s organization (expensive for the vendor). System demonstrations at a vendor’s site provide access to more people on the vendor’s staff and the vendor can select different presenters for different topics. However, if you want to have the system seen by a number of your people, you have to pay to get them there. On the other hand, vendor demonstrations at your site enable multiple staff to see demonstrations of one or two functions of the system, and then go back to work.

Most vendors are always ready to provide a demonstration of the system at their home offices. A visit to the vendor's offices is a good way for you to see the system in operation. Vendors usually operate the most recent release of the system software, and can show you the full scope of the system on test data files. To a certain extent, however, going into a vendor's office for an "objective" demonstration of a system may seem like asking a fox to count the chickens in the hen house. On the other hand, the vendor's demonstration may be more indicative of the "pure" system, and less affected by management style, inappropriate use, misunderstandings or incorrect implementation than one at a customer's site.

Another (and becoming more popular) venue for system demonstrations is the Internet. Most behavioral health organizations have some Internet access, and vendors are now using that capability to conduct system demonstrations. Prospects are given an Internet address to contact at a certain time, and the vendor has a demonstration system ready to go. Usually, a simultaneous conference call or "net meeting" is set up so vendor and prospect staff can talk about what is being shown at any point. Internet demonstrations are relatively inexpensive for both the prospect and the vendor, which means that it is possible to have several in the course of a system evaluation.

Systems are complex and detailed; no demonstration will be able to get into all of the details. However, if the demonstration is a good one, you should be able to gather three key pieces of information from the process: (1) the scope of the system being demonstrated; (2) whether or not the vendor representative knows what he or she is talking about; and (3) what it might be like to do business with the vendor. If you can accomplish these three things, your time will have been well spent.

Site Visits

Another key component to the selection of both a vendor and an information system is a review of organizations already using the system in question. The ongoing relationship between system vendors and their customers provides a valuable indicator regarding the ultimate success of a given system's implementation.

On-site demonstrations at customer sites are subject to organizational issues relevant to that site alone. There is no "typical" behavioral health program; each one is different. In many cases, the same software that works well for one site may fail miserably at another. If the software is the object of your review, make sure the site you visit is representative of your needs. The best site for evaluating a system is: (1) one where the system is fully installed and operational; (2) within a stable and well managed organization; and (3) that is and similar to your organization. If you can't find such an organization, forego the site visit. Remember, you want to learn about the system, not its host organization.

The vendor may assist you in arranging for a demonstration of the system at an existing user's site. If you are able to make two site visits to see the system, you should see the system both in the vendor's offices and at an installed site. If you can attend only one site visit, however, your time would probably be better spent working with the system in the vendor's offices.

System Buying Criteria

A national survey once asked over 1,500 individuals who had acquired information systems for their businesses on more than one occasion,

"What criteria did you use and what were your priorities in making system selection decisions?"

Results were as follows:

Criteria for First Purchase

1. Price
2. Implementation Ease
3. Ease of Use
4. Software Fit
5. Function
6. Equipment
7. Growth
8. Support
9. Documentation
10. Vendor

Criteria for Second Purchase

1. Support (56%)
2. Vendor
3. Equipment
4. Growth
5. Software Fit
6. Documentation
7. Function
8. Implementation Ease
9. Ease of Use
10. Price (5%)

A quick glance at the two lists will show that the second set of criteria is almost a mirror image of the first; the items that seemed most important during the first system acquisition seemed the least important during the second. Why is this the case?

If you stay with the same vendor for an extended period of time (e.g., 5-10 years), it is highly unlikely that at the end of the period you will still be running the same software or the same hardware you were running when you started. You'll likely be running greatly enhanced versions of both. You will no longer be concentrating on the way the system works, having long since put operations on "automatic pilot." But you will still be dealing with the same vendor, many of the same support staff and probably the same underlying philosophy of the system. If that's a good fit, you'll be a happy user; if it's not, you won't.

Whether your list of criteria would look like either of the above is known only to you, but it's important to remember that system mechanics come and go, but the vendor sticks around. You should pick your business partners with care.

Contracts

You've finally arrived. By this point you have probably reviewed your system alternatives, checked out the vendors and narrowed the options to one or two. It's time to talk contracts.

When thinking about contracts, keep several points in mind:

- Contracts, like locks on doors, are designed to keep honest people honest. No contract will *make* someone honest.
- You shouldn't think of the contract itself as the agreement; it merely records the details of the parties' mutual understandings of the agreement, and as such should represent both the letter *and* the spirit of the relationship.
- Negotiate as necessary to represent your interests during contract discussions, but don't try to nickel and dime a vendor — you'll gain in the short term but may lose in the long run. Most vendors will probably accede to your pressures just to get the deal, but later on will remember your business style and may not extend to you some of the same courtesies shown to more favored consumers (e.g., timely return of phone calls, free telephone consultation, quick software changes).
- Your relationship with the vendor is a long term one. Don't mess it up over details the first day. Be realistic and address the intent of the relationship. In a good contract each party should feel that it got 51% of the deal. Remember that you are contracting for a relationship, not a purchase.

Application of the Rotary Club's Four-Way Test is particularly appropriate for contract negotiations:

Is it the truth?

Is it fair to all concerned?

Will it build goodwill and better friendships?

Will it be beneficial to all concerned?

The strength of a contract is in its spirit, not in its letter. Ideally, once signed, a contract should be able to be placed in a file and never needed again. Should you ever get to the point where you and a vendor are interpreting your contract according to each dotted "i" and crossed "t" then it's a safe bet that your relationship with the vendor isn't very healthy.

Standard Vendor Contracts

Most system contracts are prepared by the vendors and are written to protect the vendor. What do you expect? The vendor's approach is no different than your own — "I know I'm honest and well-intentioned, but I want to make sure I'm covered against anything the other guy might do."

To cover themselves, most system vendors have standard system contracts. Their initial tactic is often to present standard contract terms in a "take-it-or-leave-it" manner. It's as if you were buying widgets. "Just enter the quantity, extend the unit prices, add up the totals, sign it as is and send us a check. Then we'll send you a system."

There are several reasons for such an approach on the part of a vendor:

- **Consistency** — As much as possible, vendors like to keep the business rules the same for all consumers. It is easier to make decisions about business directions, marketing issues, pricing, services and products if most (or all) of your consumer contracts contain the same terms and conditions.
- **Simplicity** — Standard contracts are simple. As far as the vendor is concerned, they require equipment and software descriptions, dollar amounts, signatures and dates only. The vendor is already comfortable with the terms (after all, he wrote them), so he doesn't have to pore over each new contract with a fine tooth legal comb. He already knows the standard contract is consistent with his business needs and practices.
- **Tested Format** — Standard contracts work. Most vendors have refined them in multiple situations over several years, and they seem to provide the structure for a workable vendor-consumer relationship.
- **Vendor Protection** — Standard contracts usually provide the vendor with maximum maneuvering room when questions arise. The standard contract may have an exception here, a clause there or a definition somewhere else that was added after some prior situation arose where the vendor wasn't adequately protected.

Just because a standard contract form is placed in front of you doesn't mean that you have to sign it without modifications. It simply means the vendor would like you to. Most vendors are reasonable business people and recognize that you sometimes have legitimate reasons for changing or rejecting contract terms.

You have a responsibility to make contract changes that you need, irrespective of a vendor's disinclination to do so. However, you should not change things simply as an exercise in power and vendor manipulation.

Outside Contract Review

If you plan to have an attorney or advisor review your contract before signing, get him or her involved early in the contracting process. Don't wait until you have negotiated the terms with the vendor before getting an advisor's review. Such moves can create extensive contracting delays. The vendor is negotiating on behalf of his company, and he probably assumes that you have similar authority. Don't introduce a new party at the end of the process.

Early review by attorneys, board members or anyone else you need can also prevent last minute and arbitrary changes from being made just so it looks like the advisor was doing his or her job.

7

Implementation: The Key to Success

Investment in reliability will increase until it exceeds the probable cost of errors, or somebody insists on getting some useful work done.

Gilb's 9th Law of Reliability

So where are we? Let's see ... we've figured out what an information system is and what it can do, we've determined the characteristics of a "good" system vendor, we've prepared an RFP and evaluated the responses, and we've selected a system. So much for the preliminaries; now it's time to start the real work — implementing the system.

System success depends as much upon the decisions made regarding implementation as upon software and hardware. There is little point in investing significant resources in acquiring a system without also making a corresponding investment to ensure its success.

Our experience has shown that organizations that take system implementation most seriously are the ones whose systems most effectively meet their needs. Neighboring programs that select the same information system can experience very different degrees of success. In one, the system works well; in the other the system is little more than useless. In both cases, the hardware and software are the same. The only difference is organizational preparedness and the choices made during the implementation process.

Phases of Implementation

There are three major tracks of activities for implementing an information system. All begin at the point of contract execution and end when the information system is operational within your organization. The tracks are as follows:

- Initial Implementation Steps — Tasks required to identify resources, plan for the implementation and assure that the project execution occurs as outlined.
- Staff Training and Loading of System Tables — Tasks required to assure that your staff receive appropriate instruction and technical assistance in the concepts, definition and operation of the information system.
- Hardware and Software Installation — Tasks required to coordinate the delivery and installation of the computer hardware, operating system and information system software.

Implementation can take many forms, and each vendor has its own approach to getting its systems up and running. Therefore, remember that the tasks listed below are representative of typical system implementations and may not exactly correspond to what your vendor may recommend. However, if your process seems to vary significantly from the listed items, you should begin asking some questions to find out why.

Initial Implementation Steps

The following items are typical of the steps you will need to undertake to achieve successful identification of resources and definition of the information system implementation plan:

- **Assignment of the Project Manager** — As soon as the contracts are signed, you should assign a Project Manager to the IT implementation project.
- **Select and Assign the System Manager** — Selection of the appropriate information system manager may be as important to system success as the system selection itself. The person will become instrumental in the establishment of the information system department and will be closely involved with the implementation of the system. If you don't already have one, as soon as possible in the system acquisition process you should select a person who will act as an information system manager.

The information system manager role is not simply a technical “computer type” job. In addition to (and possibly more important than) having knowledge about computers and systems, the manager must become familiar with and sensitive to the internal clinical, financial and managerial operations of your organization and know how the information system will fit into them. The information system manager should also have some administrative or management background, understand the use of and potential of an information system, and be familiar with data, input documents, output reports, information flow and related policies and procedures. Many organizations have failed in their information system implementations because they put a “computer type” in the leadership role. A strong technical orientation is important, but remember that in the job title the word “system” is only the adjective. The noun is “manager.”⁵

- **Develop Project Plan and Schedule** — In conjunction with your selected vendor, you should then formulate a system implementation plan with timelines that take into account hardware and software delivery, and any contracted software customization.

⁵ If your organization is large enough to have a separate person in the role of Chief Information Officer (CIO), the system manager can be a more technically-focused role. If you don't have someone in the role of CIO, however, don't make the mistake of assuming that the system manager should be totally technical.

- Assemble Project Team — You should assign implementation team members to make sure the system implementation flows smoothly.⁶ If your system requires any software development or program modification by the vendor, your Project Manager should keep track of the work in progress to see that it occurs on schedule and as designed. In addition, all hardware issues that require coordination with the supplier should be monitored continually.
- Identify System Operators — You will then need to identify people to handle the day-to-day data entry functions. We recommend that system operators be personnel who are familiar with organizational operations and staff. Although these people need not receive special instruction prior to the system's installation, they should be made aware of the nature of the information system and its implications for them.

Staff Training and Loading of System Tables

The following items are typical of the steps you will need to undertake to achieve successful conclusion of the training and initial set-up activities for implementing the information system:⁷

- Develop Training Plan and Schedule — You will need to formulate a training plan that takes into account the staff who will be trained, the items to be covered and the system implementation schedule.
- Choose Training Facility — You should identify any training resources required for staff training. You will need to identify and reserve appropriate training facilities/space for the training sessions.
- Publish Training Schedule — Once the training plan is defined, you should detail specific times for each stage of the system's installation. At that point, the schedule should be published and appropriate staff identified so that work schedules can be adjusted to accommodate the training sessions.
- System Manager Training — You should coordinate with the system vendor to schedule training for the system manager. Initial system manager training should include instruction in development of system tables and security, back-up and recovery procedures, as well as the use of such utilities as system start up and shut down.

⁶ Normal information system decision making can (and should) fall within any existing re-engineering efforts as described in the first volume of this series. For example, you shouldn't need a separate IT Steering Committee for general system decisions, as most of those activities would be covered as part of the re-engineering effort. If you do a full information system implementation, however, you should have a separate team, as many implementation tasks are more technical in nature. Any existing Re-engineering Steering Committee should still maintain general coordinating control and oversight over the IT implementation efforts.

⁷ These tasks occur simultaneously with the Hardware and Software Installation activities.

- **User Training (Clinical and Billing)** — You should coordinate with the system vendor to schedule clinical system training for appropriate staff. Before the tables and data dictionaries can be built, your staff should receive training in the clinical and billing components of the system.
- **Define Clinical/Billing Tables and Dictionaries** — The data for the tables and data dictionaries enable the information system to employ the clinical terminology, range/validity checks, input screens, help screens and reports that custom tailor the system to your organization. Some initial procedures may be assisted by your vendor, but it is your responsibility to build the appropriate control tables and data dictionaries required for clinical and billing activities.
- **Backload Clinical Data and Begin Parallel Operations** — You will need to identify criteria for initial parallel operations of the clinical information system. Part of the clinical training may include backloading enough clinical data to begin using the information system in parallel with existing operations. This will enable your staff to become more proficient in the use of the system and to gain confidence in the information system as a replacement for existing clinical and billing procedures.
- **User Training (Financial System)** — You should coordinate with the system vendor to schedule financial system training for appropriate staff. Before the financial tables and data dictionaries can be built, your staff should receive training in the financial components of the system. Often, test data can be loaded and the information system can be used in the course of user training for testing the financial functions.
- **Define Financial System Tables and Dictionaries** — The data for the financial system tables and data dictionaries enable the information system to employ the terminology, range/validity checks and reports that custom tailor the financial system functions to your organization. As was the case with clinical functions, it is your responsibility to build the appropriate control tables and data dictionaries required for financial system activities.
- **Backload Ledger Data and Begin Parallel Operations** — You will need to identify criteria for initial parallel operations of the financial information system. Part of the financial training may include backloading enough financial system data to begin using the information system in parallel with existing operations. This will enable your staff to become more proficient in the use of the financial system functions and to gain confidence in the information system as a replacement for existing procedures.

Hardware and Software Installation

The following items are typical of the steps required for the successful hardware and software installation for the information system.⁸

- **Order Hardware** — The system vendor should order any hardware specified in the contract, monitor the status of your hardware order, inform you of actual shipping dates and arrange for installation of the equipment. Coincident with placing hardware orders, you should conduct a site review to determine terminal/PC distribution and cabling requirements.
- **Select and Prepare Installation Site** — The computer manufacturer's pre-installation materials should provide instructions on site preparation, as well as hardware space, environmental and electrical requirements. All site preparation should be scheduled for completion prior to hardware delivery. If appropriate, you may want to arrange for an environmental visit from a qualified third party to ensure that your site will be both adequate and prepared when your computer arrives.
- **Order Computer Supplies and Arrange Equipment Insurance** — You are responsible for ordering supplies needed for the routine operation of the system. Your computer equipment should be insured for its full value from the date of delivery on site. Arrangements for coverage should be made with your carrier prior to hardware delivery so that notification of the insurer is all that is required on the day of delivery.
- **Hardware Delivery** — Hardware is usually scheduled for inside delivery; however, due to circumstances beyond your control, some deliveries may be made only to your street address, not inside. Should this happen, you will be responsible for arranging for the movement of any crates and boxes to the appropriate location.
- **Install/Certify Hardware and Operating System** — Hardware installation is normally performed by the vendor or your computer manufacturer's representatives, and should include site review and evaluation, unpacking, and assembling and testing the hardware. When the hardware installation is complete, your vendor should load the operating system software and perform the system generation functions required to define each installation appropriately. Installation is complete when all hardware and operating system components are operational and certified.
- **Hardware Maintenance Begins** — Hardware warranty periods vary depending upon the type of device, manufacturer and nature of installation, and can range from no warranty at all to a full year from installation. We strongly

⁸ These tasks occur simultaneously with the Staff Training and Loading of System Tables activities.

recommend that you contact your computer equipment manufacturer or a qualified third party immediately following hardware installation to explore a hardware maintenance agreement on key system components. (It may be more cost-effective to keep one or more back-up devices for smaller items such as individual PCs and printers that can be pulled out of storage to replace failed devices without incurring the significant time delays that are sometimes required to fix a failed component.) It is your responsibility to comply with the hardware maintenance contract requirements negotiated with your computer manufacturer.

- **Deliver and Install Applications Software** — Once the hardware is installed, you should contact the system vendor and arrange for information system software installation and any required system manager training. Software installation normally occurs as soon as possible after the hardware is installed.
- **Software Warranty** — Most information system software packages are backed by warranty periods after acceptance. What that means is that if you detect a problem with the information system, your system vendor will fix it at no charge. Once your system is installed, the software warranty period starts. We encourage you to test your system to ensure that it is fully operational as contracted. You should also note the date when the warranty period ends and your software maintenance starts, and identify the contact person who will be your personal representative for future communications with your system vendor.
- **Software Maintenance Begins** — Software maintenance, on the other hand, begins after the warranty period ends and lets you extend indefinitely the same coverage you receive under the information system warranty. You should expect your system vendor to support any information system installation with “warranty-level” service as long as it is covered under a software maintenance agreement. Following acceptance of the information system, your system vendor should assign system maintenance personnel to your project who will be dedicated to supporting your system. You should notify the system vendor immediately in the event of an apparent software malfunction. You are responsible for ensuring that no unauthorized modifications are applied to the information system software.
- **System Operational** — Finally, you are responsible for ongoing operation of the fully implemented information system.

There, that’s all there is to it. That wasn’t so bad, was it?

Throughout the entire process, from initial planning through system acceptance, you should make sure that you maintain substantial management and technical staff support. The combined resources of your organization and your system vendor should be deployed to ensure that the information system implementation proceeds in an orderly fashion and that all personnel receive complete training and documentation.

Data Conversion

Chances are, your organization is currently using a computer system and has extensive amounts of data resident on that system. Naturally, it follows that you would like to make the conversion from its old system to your new information system as painlessly as possible.

In certain situations, it may be necessary (or simply convenient) to have the selected vendor undertake the preparation of special conversion programs to create data transfer routines to electronically transfer data stored on other systems into the new system. However, as is the case throughout the information system implementation process, there is significant work to do beyond telling the vendor, "Just take all the data from that old computer and put it in this new computer."

There are four major components to any such conversion process, the first three of which are the responsibility of your organization:

- **Initial Format** — The data storage formats of the old system must be known. (The selected vendor can tell you exactly what he needs to know.) The formats should be available either through your existing technical staff or through the people maintaining your current system.
- **Final Format** — The data storage formats of the new information system must also be known. If you have acquired a system that already has the data formats determined, the vendor should be able to tell you what he needs to know.

If, on the other hand, you have acquired a system that provides a great deal of flexibility, the content and structure of the new system as it is to be implemented must first be determined. Because much of the data definition may be subject to your decisions, the vendor may not yet know what the final format will be.

- **Translation and Mapping** — Rules for translating data from the data storage formats of the old system to those of the new information system must be specified. In other words, if the old system stored Consumer Sex as a "1" or a "2," and your organization wants to store "M" or "F" in the new one, that decision needs to be communicated to the vendor.

Translating and mapping can take some time. Avoid the temptation to do either a "quick and dirty" job or assume that the vendor will know what to do. You need to do the work.

- **Software Development** — If electronic data transfer still appears to be appropriate, software must be written and tested that can read the data stored in the source system and translate those data into the formats required by the new system.

If you undertake a data conversion process, there's a good chance you will discover what many others have found — conversion may not be worth the effort. If you don't have a lot of information to transfer, aren't sure of the quality of the original data or haven't

thought through all the details of translating from old to new, it may be less time consuming to enter the information again, manually editing as you go.

However, if your organization has a great deal of information in its old system, the original data are “clean” and valid, the data formats easily accessible and the rules for translating simple, then automated data conversion will probably be helpful.

Outside Advisory Services

Many system vendors supply, at best, very preliminary training and limited support during the first several months of system implementation. Thus, it is often helpful to have an outside party function as a consultant, providing advisory services as required. Activities might include review of input documents and advice on how to match the system to forms and procedures, reviewing needs as they relate to required state reporting or meeting with governing board members and overseeing progress to date.

It may also be helpful to have someone work with your staff after system installation to ensure that implementation is proceeding according to schedule, to reinforce skills learned during training, to review progress on overall system goals and to suggest alternative actions to correct any discrepancies.

You should be prepared to contract for additional advisory services on an as-needed basis. Few behavioral health organizations have the staff or resources required to handle complete and timely implementation of a comprehensive information system. Selected advisory resources can be used to focus on specific tasks (e.g., policy and procedure development) and can help you keep your implementation on schedule.

An advisor can also help conserve your resources. Implementation is by nature a resource intensive process that can dominate the time and energies of your staff. If outside advisors are used to facilitate parts of the process, your staff can more easily continue to manage their responsibilities for the ongoing operation of the organization.

8

Implementation Tips & Mistakes

*Build a system that even a fool can use,
and only a fool will want to use it.*

Shaw's Principle

If it hurts to use a screwdriver, turn it around.

Unknown

Having good behavioral health information system software and hardware is not the same as having a good behavioral health information system. Unless it's completely and appropriately implemented, even the best system will produce poor results.

Almost any established information system vendor can point to successful organizations that use their software to produce exemplary results. What they can also point to, although they may not be so quick to do so, are unsuccessful organizations that use their software and who think that software is responsible for a large part of their failure.

What's going on here? Why does one organization attribute success to a system and another organization blame the same system for its problems? There's a good chance the answer is implementation — the organization that properly implemented the system is the one that succeeded with the system. In other words, it's not the tool, it's the way the tool is used.

In most cases, information systems succeed or fail as much as a result of their implementations as the system itself. Organizations spend hundreds of thousands of dollars on technology only to discover that people either don't know how to use it, or end up using it in a manner other than that for which it was designed. And the failure is always the system's fault, right?

A good rule of thumb for evaluating software is, "If it works anywhere, it works." If you're having trouble getting information system software to perform up to your expectations, ask yourself if the system is working well in any other comparable organization. If the answer is yes, there's a good chance that the problems you are experiencing are implementation problems and you're not using the system as it was designed.

There are many things you can do right and many mistakes you can make in the implementation of an information system, but the following are few of the most important tips and the most frequently encountered mistakes.

Tip #1:**Identify Information as a Strategic Asset**

With the shift toward a more regulated environment and the arrival of managed care, the role of the information system is changing. Because the data contained in the information system is more important to people in accomplishing their day-to-day activities than before (e.g., need for benefits verification during the scheduling process), the value of that information is increasing.

In the past, the focus of the information system function in behavioral health organizations has often been related to hardware and software. While this may have worked in the past, we feel that the future success of information system activities will be directly related to the degree that people change their perceptions of information and its value on a day-to-day basis (as opposed to a month-end report). Such a perception will be assisted by adoption of a formal policy stating that your organization places high value on information and is directing its information system efforts toward providing widespread access to information technology throughout all levels of the organization. (In other words, we're not just planning on running a bigger, faster computer; we're changing the way people work.)

While adoption of such a policy may seem to be simply a *pro forma* action, we feel it extremely important to formally recognize information as one of the most important (if not *the* most important) strategic assets of your organization. Until such a policy exists and staff and management begin to value information highly and incorporate it into their decision making, your information system will remain a management afterthought.

Tip #2:

Adopt a Set of Information System Ground Rules

The success of any information system implementation is highly dependent upon the degree to which it is internalized into the corporate culture of its parent organization. If the organization believes in the system, the system will work; if the organization doesn't believe, the system won't work.

It's critical that your organizational administration demonstrate its commitment to the linked concepts of a consumer-centered organization and a strong information system if your information system activities are to be instrumental in helping your organization succeed in a changing world.

Therefore, we recommend that you consider the following statements as general policy:

- **Integrated Organization** — *The organization is committed to a consumer-centered concept, where the organization is operationally structured around the needs of the consumer, instead of the other way around.*
- **Integrated Information System** — *The organization believes that the consumer-centered concept should also extend to the information system, which should, in turn, provide a single resource to address consumer and organizational needs.*
- **The Bottom Line** — *To ensure that the system becomes the natural repository of all mission-critical information, as of a stated "go-live" date, all organizational decisions should be made based upon system data.*
- **Consumers** — *All consumers should be in the system.*
- **Staff** — *All staff should be in the system.*
- **Tracking** — *All organizational activities should be tracked in the information system. In other words, all staff should be accountable through service entry documents (or equivalent time tracking instrument) every day.*
- **Current** — *All service entry documents should be entered into the system by the next day.*
- **Scheduling** — *The organization should begin using the scheduling features of the system to whatever degree is appropriate on a program by program basis. At a minimum, such scheduling should include all appropriate clinical services.*
- **Commonality** — *As much as is appropriate, the organization should create common formats, forms, screens, codes as appropriate to build organizational identity within the information system.*

Tip #3:

Create a Range-Based Service Taxonomy

The primary business of the behavioral health system is the delivery of services to people in need. Each service delivered then, becomes a primary unit of measure when looking at the organization. That fact remains true, whether one's perspective is clinical, financial or operational.

The basic service that needs to be tracked can be broken down into an 11-part question, as follows:⁹

1. Who
2. received how much of
3. what service
4. from whom,
5. when,
6. where,
7. within what program,
8. reimbursable by what source of funds,
9. for what amount,
10. at what cost,
11. and with what effect?

As can be seen in the table below, each of those components has its parallel in the service file of a behavioral health information system (e.g., “Who” = Staff ID, “How Much” = Service Duration, “What Program” = Cost Center).

| | |
|---|-----------------|
| 1. <u>Who</u> | (Consumer ID) |
| 2. <u>received how much of</u> | (Duration) |
| 3. <u>what service</u> | (Service Code) |
| 4. <u>from whom,</u> | (Staff ID) |
| 5. <u>when,</u> | (Date & Time) |
| 6. <u>where,</u> | (Location) |
| 7. <u>within what program,</u> | (Cost Center) |
| 8. <u>reimbursable by what source of funds,</u> | (Payer) |
| 9. <u>for what amount,</u> | (Fee) |
| 10. <u>at what cost,</u> | (Service Costs) |
| 11. <u>and with what effect?</u> | (Outcome) |

Three of the above 11 items (i.e., service codes, cost centers, payers) are usually linked to information system tables that are defined by the user during system implementation. Unfortunately, organizations often see the table definitions as a simple task and put too little thought into how they should be structured. The result is a level of complexity that can create a ripple effect that complicates billing, reporting and the system's ability to address the needs of the organization.

⁹ Obviously, there are more pieces of information required to run a behavioral health program, but if a system can track the above 11 items for all key activities, and tie them back to additional details about the total time available, the recipients of the services, the providers, and other important factors, you will be able to report most of what is required to run a behavioral health organization.

Asking Too Much of a Service Code

Users frequently encounter problems with systems when they ask one of the eleven components to do the work of another. In an ideal world, the service code should record “what” occurred and nothing else. In our experience, the single most significant factor that contributes to overly-complicated and ineffective information systems occurs when the service code is used to capture more than “what” occurred.

In the following table (drawn from actual service code masters from one of our clients) the service codes are doing the work of several of the eleven questions. For example, service code #1706 not only identifies the “What” (Individual Therapy), but also the “How Much” (20–30 Minutes), the “Whom” (MD/DO), and the “What Program” (Outpatient Mental Health).

| Service Code | Service Code Description | Who | How Much | What | Whom | When | Where | What Program | What Payer | What Fee | What Cost | What Effect |
|--------------|--|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1706 | Individual Therapy, 20–30 Minutes, MD/DO, Outpatient Mental Health | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1707 | Individual Therapy, 20–30 Minutes, MD/DO, Outpatient Substance Abuse | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1711 | Individual Therapy, 45–50 Minutes, MD/DO, Inpatient | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1712 | Individual Therapy, 45–50 Minutes, MD/DO, Residential | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3706 | Individual Therapy, 20–30 Minutes, MD/DO, Outpatient Mental Health | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3707 | Individual Therapy, 20–30 Minutes, MD/DO, Outpatient Substance Abuse | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3711 | Individual Therapy, 45–50 Minutes, MD/DO, Inpatient | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3712 | Individual Therapy, 45–50 Minutes, MD/DO, Residential | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Any time a service code has a check in any column other than “What” it represents a potentially unnecessary complication in the coding structure (and the ability of staff to select the correct code). Each extra check also indicates a potential point of inconsistency (e.g., combining a brief therapy service code with a full-length duration, or having a physician-only code used by a non-physician).

In addition, the table also shows that the service codes for a given type of activity (e.g., Individual Therapy) are not located within a single numerical range. Instead, the individual therapy codes are located at least two separate ranges (i.e., 1700’s and 3700’s). Actually, at the organization from which the above codes were drawn there were nearly 50 different codes for various individual therapy, provider, duration, and program combinations.

It can get worse. We’ve even seen codes such as the following:

| Service Code | Service Code Description | Who | How Much | What | Whom | When | Where | What Program | What Payer | What Fee | What Cost | What Effect |
|--------------|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 1234 | Individual Therapy, 20–30 Minutes, MD/DO, Outpatient Mental Health, New Consumer, Medicaid | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Of course, it’s very easy to simply define lots of service codes for all possible combinations and give appropriate staff appropriate lists. Reports are simple to write and everything works fine. Until something changes. Then the darker side of additional service codes emerges. Each code that is added must be checked and edited against existing report writer specifications, code tables, rate schedules, service authorizations, and billing rules (there may be others). The ongoing maintenance of a large and dynamic service code master file can be a very time-consuming task.

The implications and effects of the use of such multi-dimensional service codes are significant. One of the issues consistently reported to us by behavioral health organization staff is the difficulty in selecting appropriate service codes to record what they do. Such a proliferation of codes simply exacerbates the problem. This can be particularly frustrating to staff, when from a technical standpoint, most systems allow use of a single service code for individual therapy (or any other single type of service) without compromising the ability to report on any of the other factors (e.g., who, duration, program) or bill differently based upon and combination of those factors.

In general, one can assume that the typical behavioral health organization should have somewhere between 50 and 150 service codes, depending upon the level of detail it wishes to track. When the numbers get much larger than 150 or so, it’s usually symptomatic of either a misunderstanding of the way the information system can interrelate the various components of the 11-part question, or it is indicative of an attempt to simplify

operations for one part of an organization (e.g., billing office) at the expense of another (clinical staff). In any event, an excessive number of service codes creates data integrity problems around which it is difficult to engineer.

Sample Service Code Taxonomy

At a minimum, a behavioral health information system should be able to track all the direct, face-to-face services in order to bill. But as important as it is, billing isn't everything. The concept of service can be expanded to include other key activities that occur throughout the day. Vacation time, sick leave, telephone contacts, meetings and other "non-direct" or "non-billable" activities should also be tracked, as they have major impact upon the use of organizational resources and the computation of costs.

Listed below is a sample service code taxonomy. It is based upon a four-digit service code, but the model could be applied in principle to almost any system vendor's service code structure. Note that similar service codes are clustered within ranges for ease of reporting and code expansion:

| Service Code | Service/Activity Description |
|------------------|---|
| 1000-1999 | Face-to-Face Clinical Encounters |
| 1000-1009 | Crisis Intervention |
| 1100-1199 | Clinical Intake (Initial Visit) |
| 1200-1209 | Individual Therapy – Level 1 – Brief |
| 1210-1219 | Individual Therapy – Level 2 – Intermediate |
| 1220-1229 | Individual Therapy – Level 3 – Comprehensive |
| 1300-1309 | Group Therapy – Level 1 – Brief |
| 1310-1319 | Group Therapy – Level 2 – Intermediate |
| 1320-1329 | Group Therapy – Level 3 – Comprehensive |
| 1400-1409 | Family Therapy |
| 1500-1509 | Activities Therapy |
| 1600-1609 | Partial Hospitalization |
| 2000-2999 | Non Face-to-Face Encounters, Assessments |
| 2000-2009 | Assessment (Initial) |
| 2010-2019 | Assessment (Psycho-Social) |
| 2020-2029 | Assessment (Nursing) |
| 2030-2039 | Assessment (Psychological) |
| 2040-2049 | Assessment (Other) |
| 2100-2109 | Evaluation (Judicial) |
| 2110-2119 | Evaluation (Psychological) |
| 2120-2129 | Evaluation (Psychiatric) |
| 2130-2139 | Evaluation (Psychiatric – Records Only) |
| 2140-2149 | Evaluation (Other) |
| 2200-2209 | Consultation (Psychiatric/Psychological) |
| 2300-2309 | Screening (Pre-Admission) |
| 3000-3999 | Case Management, Reviews |
| 3000-3009 | Case Management (Advocacy) |
| 3010-3019 | Case Management (Face-to-Face) |
| 3020-3029 | Case Management (Medical) |
| 3030-3039 | Case Management (Utilization Review) |
| 3040-3049 | Case Management (Other) |
| 3100-3109 | Treatment Plan Review |
| 3200-3209 | Discharge Planning |

| Service Code | Service/Activity Description |
|---------------------|--|
| 4000-4999 | Medically-Related Procedures |
| 4000-4099 | Medication – Injections |
| 4100-4109 | Medication Review – Level 1 – Brief |
| 4110-4119 | Medication Review – Level 2 – Intermediate |
| 4120-4129 | Medication Review – Level 3 – Comprehensive |
| 4200-4209 | Physician Visit/Round – Level 1 – Brief |
| 4210-4219 | Physician Visit/Round – Level 2 – Intermediate |
| 4220-4229 | Physician Visit/Round – Level 3 – Comprehensive |
| 4300-4309 | Initial Sick Visit – Level 1 – Brief |
| 4310-4319 | Initial Sick Visit – Level 2 – Intermediate |
| 4320-4329 | Initial Sick Visit – Level 3 – Comprehensive |
| 4400-4409 | Sick Visit – Level 1 – Brief |
| 4410-4419 | Sick Visit – Level 2 – Intermediate |
| 4420-4429 | Sick Visit – Level 3 – Comprehensive |
| 4500-4509 | Hospital Care (Psychiatric) – Level 1 – Brief |
| 4510-4519 | Hospital Care (Psychiatric) – Level 2 – Intermediate |
| 4520-4529 | Hospital Care (Psychiatric) – Level 3 – Comprehensive |
| 4600-4609 | Nursing Services (One-to-One) |
| 5000-5999 | Ancillaries – Pharmacy |
| 5000-5999 | Ancillaries – Pharmacy |
| 6000-6999 | Ancillaries – Laboratory |
| 6000-6999 | Ancillaries – Laboratory |
| 7000-7999 | Non Consumer-Related Activities |
| 7000-7099 | Consultation & Education |
| 7100-7199 | Outreach |
| 7200-7299 | Prevention |
| 7300-7399 | Court Testimony |
| 7400-7499 | Transportation |
| 7500-7599 | Room & Board (Daily Rate) |
| 8000-8999 | Training, Supervision & Meetings |
| 8000-8009 | Meetings – Staffing |
| 8010-8019 | Meetings – Utilization Review |
| 8020-8029 | Meetings – Other |
| 8100-8109 | Supervision (Peer-to-Peer) |
| 8110-8119 | Supervision Provided |
| 8120-8129 | Supervision Received |
| 8200-8209 | Training – In-Service |
| 8210-8219 | Training – Seminars Given |
| 8220-8229 | Training – Seminars Received |
| 9000-9999 | Other Payroll-Related & Administrative Activities |
| 9000-9009 | Payroll – Sick Leave |
| 9010-9019 | Payroll – Vacation |
| 9020-9029 | Payroll – Personal |
| 9030-9039 | Payroll – Floating Holiday |
| 9040-9049 | Payroll – Other Leave |
| 9900-9909 | Administration |

Tip #4:

Develop “Function by Location” Cost Centers

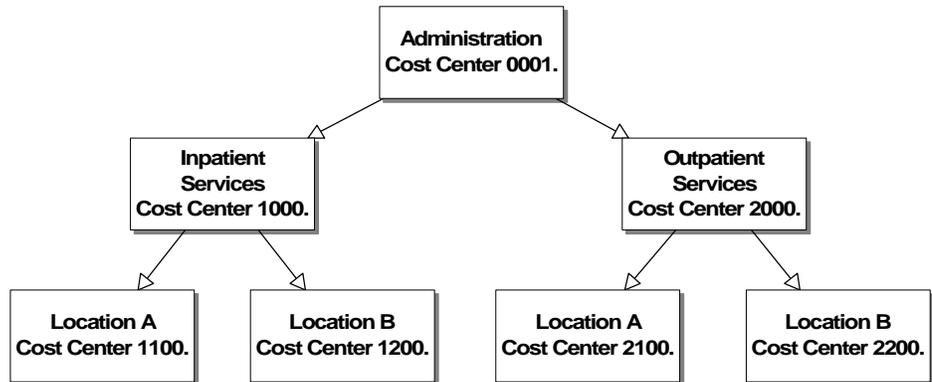
Almost any information system will require the user to define some form of cost center structure. Cost centers link to almost everything that happens in an information system; the better the design of the cost center structure, the better the ability of the resulting system to succeed at addressing the organization’s needs.

Basically, cost centers are pretty simple. They are the units that reflect those organizational components around which reporting or cost allocation will occur. Each user organization has a unique organizational structure that should be reflected in its cost center structure. The hierarchical relationship among the various cost centers is fundamental to the system’s allocation of costs and creation of accounting entries.

There are two basic methods of organizing a cost center structure:

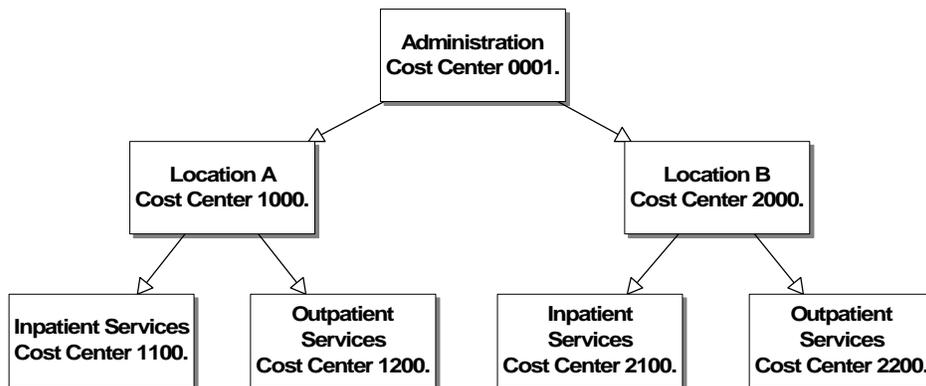
- **Function by Location** — The first is a “function by location” model, where the initial division of the organization is into functional areas that reflect the spectrum of clinical programs and activities provided, and that structure is further subdivided by the locations where those services are provided.

**Cost Centers
(Function by Location)**



- Location by Function — The second is a “location by function” model, where the initial division of the organization is into the locations where services are provided, and that structure is further subdivided by functional areas that reflect the spectrum of clinical programs and activities provided.

Cost Centers (Location by Function)



Both “function by location” and “location by function” models provide essentially the same information and require the same number of individual cost centers to provide equivalent levels of detail. In other words, both will work.

But is one approach “better” than the other? Throughout the current document we have focused upon the behavioral health organization’s role as a service provider. It’s what you do now, and it’s what you have done since the organization was founded. Staff have come and gone over the years; offices have changed; buildings have been bought or leased; reimbursement rules have evolved; new regulations have been imposed; programs have grown or shrunk ... But throughout the process, the organization has continued to provide a similar mix of services to its consumers. Therefore, it seems like the one factor that has remained most stable (i.e., the functional range of services provided by the organization) is the most appropriate factor for the initial organization of cost centers.

For some reason, organizations sometimes get “bogged down” when they try to number their cost centers during implementation of an information system. The easiest and quickest way to create a structure is to: (1) draw out the organization to create a model that “looks and feels” like your organization; (2) get affirmation on the structure from key leadership staff; and (3) only then begin the process of numbering the cost centers.

Subsequent system reporting will usually be facilitated if you pay particular attention to the use of hierarchical structures (e.g., all cost centers that begin with X or have Y as a second digit are related), and the use of ranges (e.g., all cost centers in the range 1000–1999 are related).

Tip #5: Create a Hierarchical Payer Structure

Most behavioral health organizations have to bill for their services in order to stay in business, and most behavioral health information systems have features that allow them to do so. However, the ease with which one can bill for services and manage receivables is highly dependent upon the method used to define payer numbers.

There are several approaches to assigning payer numbers that are frequently used by behavioral health organizations:

- **Primary, Secondary & Third Party Payers** — In *Hamlet*, Shakespeare wrote that, “Brevity is the soul of wit.” That may be true, but when assigning numbers to payers, one can be too parsimonious. Quite often, organizations use a very simple set of payor identifications such as “Primary” and “Secondary” payers. Similarly, some organizations create a single payer for “Third Party Insurance.”

At first glance, such an approach may seem to make sense. When a payment comes in, however, the shortcomings begin to appear. For example, payments cannot be applied without analysis of each affected consumer’s account, as the same payer (i.e., ABC Insurance Company) can be represented by different payer numbers for different consumers. As a result, applying payments from single payers can be time consuming. In the case of consumers with multiple “Insurance” eligibilities, payments may be difficult to apply, as events billed to all insurance eligibilities usually aren’t differentiated on the payment screen. Likewise, services that may need to be billed to the next payer in line often have to be billed manually, or cannot be rebilled at all because some systems don’t allow re-billing to “the same” payer (e.g., Insurance to Insurance).

- **Sequential Assignment** — Another often used approach is to assign payer numbers sequentially, as required. The downside of such an approach is that there is little room to categorize and accumulate information by payer type for reporting purposes. Most reports and billing specifications must be defined around specific codes. As codes change or new ones are added, those specifications must be altered. It’s not possible to produce meaningful reports based upon ranges; specific codes must be “hard-coded” into reports. As a result, maintenance of a sequential system becomes labor intensive.
- **Hierarchical Ranges** — The recommended approach is to assign payer numbers within pre-defined meaningful ranges. Usually the first two codes assigned represent the end points of their respective range (e.g., 1001-1999). If you use a hierarchical payer numbering scheme, reports and billing specifications can be defined according to code ranges. Once reporting and billing specifications are defined, they don’t have to be changed as new codes are added. Therefore, maintenance requirements are minimized.

The following table shows a sample hierarchical range-based payer structure. The example assumes a four-digit payer identifier and default billing priorities, but the approach to

hierarchical grouping would work equally well with other models. After all, it's the organizing principle that's important; the specific numbers are secondary.

| Type of Payer | Billing Priority | Payer Number Range |
|---|------------------|--------------------|
| Use the following priorities for overrides: | 9, 5, 2 | |
| Government Non-Fee-For-Service Contracts | | |
| Federal | 1 | 9001-9399 |
| State | 1 | 9401-9699 |
| County | 1 | 9701-9999 |
| Special Contracts | | |
| EAPs | 8 | 7001-7499 |
| Others | 8 | 7501-7999 |
| Commercial Fee-For-Service Revenues | | |
| Managed Care | 7 | 6001-6999 |
| Medicare | | |
| Part A | 6 | 5001-5499 |
| Part B | 6 | 5501-5999 |
| Indemnity | 4 | 4001-4999 |
| Medicaid | 3 | 3001-3999 |
| Government Fee-For-Service Contracts | | |
| Federal | 3 | 2001-2399 |
| State | 3 | 2401-2699 |
| County | 3 | 2701-2999 |
| Private Pay | | |
| Private Pay | 1 | 0001 |
| Private Pay Overrides | 1 | 1001-1999 |

Tip #6:**Create a Hierarchical Chart of Accounts**

The chart of accounts is the foundation of the entire financial structure of any behavioral health information system. You should define the chart of accounts that best describes your organization and method of accounting. There are several guidelines that could be used in preparing the chart of accounts for use with most information systems:

- **Structure** — Accounts have structure (e.g., 1=Assets, 2=Liabilities, 3=Equity, 4=Revenues, 5=Adjustments, 6=Expenses).
- **Summary Accounts** — The chart of accounts should include “summary” accounts to help organize the information. Summary accounts are not used for actual posting.
- **Decimal Extensions** — If decimals within the chart of accounts number are to be used to track revenues by payer, decimal extensions for Fee-for-Service Revenues, Corresponding Receivables, and Corresponding Adjustment accounts should be the same as the appropriate payer number. For all other accounts, the decimal extension should represent sub-account structure only. If decimals are used, at least two numbers should always be used (e.g., .01, .02, .10) so that a decimal extension of .1 doesn’t appear to be a “roll-up” account for accounts with extensions of .11, .12, etc.
- **Ending Zeros** — When the system is first started up, no accounts should have anything other than a zero before the decimal to allow for future expansion within existing account ranges.

Rigorously applying the above guidelines in the definition of a chart of accounts could simplify both the reporting and recording efforts of most system users. Specific account structures will vary from system to system, but the idea of creating a hierarchical account structure should be applicable to almost any situation.

The following table presents a skeletal version of a portion of a chart of accounts developed according to the above guidelines. It is incomplete (e.g., no Liabilities are included), and is presented as a model only. As was the case with the payer structure discussed earlier, it’s the organizing principle that’s important; the specific numbers are secondary. Account descriptions followed by (S) indicate summary “place-holder” accounts that are used for reporting “roll-ups.” Such accounts are used for reporting only; no dollars are usually posted to summary accounts.

| Account Number | Account Description | | Account Type | Correspond. Adjustment Account |
|----------------|------------------------------------|------------|--------------|--------------------------------|
| 10000 | Total Assets | (S) | Asset | |
| 11000 | Cash & Cash Investments | (S) | Asset | |
| 11100 | Change & Petty Cash | (S) | Asset | |
| 11110.01 | Petty Cash – Site #1 | | Asset | |
| 11110.02 | Petty Cash – Site #2 | | Asset | |
| 11110.03 | Petty Cash – Site #3 | | Asset | |
| 11200 | Cash in Banks | (S) | Asset | |
| 11210 | C.I.B. – Bank #1 | | Asset | |
| 11220 | C.I.B. – Bank #2 | | Asset | |
| 11230 | C.I.B. – Bank #3 | | Asset | |
| 11300 | Investments | (S) | Asset | |
| 11310 | INV – Investment #1 | | Asset | |
| 12000 | Accounts Receivable | (S) | Asset | |
| 12100 | Fee for Service | (S) | Asset | |
| 12110 | A/R – Private Pay | | Asset | |
| 12120 | A/R – Medicare | | Asset | |
| 12130 | A/R – Medicaid | | Asset | |
| 12140 | A/R – State Psychiatric Contracts | | Asset | |
| 12150 | A/R – State Addictions Contracts | | Asset | |
| 12160 | A/R – Managed Care | | Asset | |
| 12170 | A/R – Commercial | | Asset | |
| 12180 | A/R – EAP | | Asset | |
| 12190 | A/R – Other Contracts | | Asset | |
| 12200 | Uncollectables | (S) | Asset | |
| 12210 | A/R – Allow for Uncollectables | | | |
| 12300 | Other Receivables | (S) | Asset | |
| 12310 | A/R – Miscellaneous | | Asset | |
| 12320 | A/R – Employee Advances | | Asset | |
| 13000 | Prepaid Assets | (S) | Asset | |
| 13010 | Prepaid – Insurance | | Asset | |
| 13020 | Prepaid – Maintenance | | Asset | |
| 13030 | Prepaid – Other | | Asset | |
| 14000 | Fixed Assets | (S) | Asset | |
| 14100 | Fixed Assets – Land | (S) | Asset | |
| 14110 | F/A – Land Asset #1 | | Asset | |
| 14120 | F/A – Land Asset #2 | | Asset | |
| 14200 | Fixed Assets – Buildings | (S) | Asset | |
| 14210.01 | F/A – Location #1 – Asset #1 | | Asset | |
| 14210.02 | F/A – Location #1 – Asset #2 | | Asset | |
| 14220.01 | F/A – Location #2 – Asset #1 | | Asset | |
| 14220.02 | F/A – Location #2 – Asset #2 | | Asset | |

IMPLEMENTATION TIPS & MISTAKES

| Account Number | Account Description | Account Type | Correspond. Adjustment Account |
|----------------|-----------------------------------|--------------|--------------------------------|
| 15000 | Other Assets | (S) | |
| 42000 | Revenues | (S) | Revenue |
| 42100 | Fee for Service | (S) | Revenue |
| 42110 | REV – Private Pay | | Revenue 52110 |
| 42120 | REV – Medicare | | Revenue 52120 |
| 42130 | REV – Medicaid | | Revenue 52130 |
| 42140 | REV – State Psychiatric Contracts | | Revenue 52140 |
| 42150 | REV – State Addictions Contracts | | Revenue 52150 |
| 42160 | REV – Managed Care | | Revenue 52160 |
| 42170 | REV – Commercial | | Revenue 52170 |
| 42180 | REV – EAP | | Revenue 52180 |
| 42190 | REV – Other Contracts | | Revenue 52190 |
| 42300 | Other Revenues | (S) | Revenue |
| 42310 | REV – | | Revenue |
| 42320 | REV – | | Revenue |
| 52100 | Revenue Adjustments | (S) | Revenue |
| 52110 | ADJ – Private Pay | | Revenue |
| 52120 | ADJ – Medicare | | Revenue |
| 52130 | ADJ – Medicaid | | Revenue |
| 52140 | ADJ – State Psychiatric Contracts | | Revenue |
| 52150 | ADJ – State Addictions Contracts | | Revenue |
| 52160 | ADJ – Managed Care | | Revenue |
| 52170 | ADJ – Commercial | | Revenue |
| 52180 | ADJ – EAP | | Revenue |
| 52190 | ADJ – Other Contracts | | Revenue |
| 52300 | Other Adjustments | (S) | Revenue |
| 52310 | ADJ – | | Revenue |
| 52320 | ADJ – | | Revenue |
| 60000 | Total Expenses | (S) | Expense |
| 61000 | Payroll Expenses | (S) | Expense |
| 61100 | Salaries & Wages | (S) | Expense |
| 61110 | Salaries & Wages – Exempt | | Expense |
| 61120 | Salaries & Wages – Classified | | Expense |
| 61200 | Employee Benefits | (S) | Expense |
| 61210 | Employee Benefits – Taxes | (S) | Expense |
| 61210.01 | E/B – Taxes – FICA | | Expense |
| 61210.02 | E/B – Taxes – | | Expense |
| 61210.03 | E/B – Taxes – | | Expense |

IMPLEMENTATION TIPS & MISTAKES

| Account Number | Account Description | Account Type | Correspond. Adjustment Account |
|----------------|--------------------------------------|----------------|--------------------------------|
| 61220 | Employee Benefits – Ins (S) | Expense | |
| 61220.01 | E/B – Ins – Admin Fee – Group | Expense | |
| 61220.02 | E/B – Ins – Admin Fee – S 125 | Expense | |
| 61220.11 | E/B – Ins – Life | Expense | |
| 61220.12 | E/B – Ins – Life – Dependent | Expense | |
| 61220.21 | E/B – Ins – L.T. Disability | Expense | |
| 61220.22 | E/B – Ins – Dental | Expense | |
| 61220.23 | E/B – Ins – Medical | Expense | |
| 61220.23 | E/B – Ins – Workers Comp | Expense | |
| 61230 | Employee Benefits – Other (S) | Expense | |
| 61230.01 | E/B – Sick/Vacation Leave Earned | Expense | |
| 61230.02 | E/B – 403(b) | Expense | |

Tip #7:

Define & Enforce

Service Entry Document Procedures

One of the most significant areas of concern encountered in behavioral health organizations is the difficulty of getting timely service information into an information system. Without information about services provided and other staff activities, the organization is forced to manage in the dark (and if the problem persists, without incoming reimbursements). Several contributing factors such as the following can contribute to the problem:

- Service entry documents are used to capture billable services only.
- There are no controls to ensure that all services that are delivered are recorded and submitted for reimbursement.

A change in the way service entry documents are used could go far to alleviate the problems created by late data. Following are some of the issues related to the use of service entry documents.

Which Services to Record

- **Recording Billable Services Only (Not Recommended)** —Behavioral health organizations often use service entry documents to record billable services only. Service entry documents aren't prepared in advance for staff unless they have scheduled appointments. Staff with unscheduled services complete a blank service entry document.

In the above model, late service entry documents aren't known unless they contain prescheduled services, and unscheduled services aren't known until (unless?) they are manually recorded and submitted. In addition, staff can submit multiple documents for the same day. Finally, the potential for data recording and entry errors is greater on non-prescheduled forms, as more of the information needs to be manually entered.

- **Recording All Services and Activities (Recommended)** — Some behavioral health information systems can prepare preprinted, uniquely numbered service entry documents for all staff members every day. If your system has this capability, we strongly recommend that you utilize it. Include on each form any prescheduled services, as appropriate. Staff then document key activities they perform and turn the forms in at the end of the day.

There are several important benefits of this approach, not the least of which are that all staff time is accounted in the system and a document is received from each person for each day. Furthermore, missing service entry documents can be tracked and reissued, if needed. Follow-up can be done with staff to ensure timely completion of the forms.

Recording 100% of Staff Time

- **Manual Recording of All Staff Time (Not Recommended)** — Because staff time represents by far the greatest component of an organization's costs, it's imperative that you know how that time is spent. You can't understand what staff are doing unless you know both what they did and how much time they had available to do it.

It's no different than computing a batting average in baseball. Knowing that a batter got 50 hits tells us little, unless we also know how many times he came to bat. If those 50 hits came as a result of 50 trips to the plate, the batter is the greatest baseball player in history. However, if it took the batter 500 trips to the plate to get 50 hits, he may be overdue for a trade to another team.

To achieve the behavioral health equivalent of the number of times the batter gets to the plate, many organizations have their staff manually record everything they do during the day. Unfortunately, the result is often not what was intended. If staff were expected to work eight hours per day and were asked to manually record services and activities, when they entered the total number of hours worked, would you be surprised if the answer came up eight hours? Probably not. Would you trust the data? Probably not.

Why? Most likely, staff simply entered their most important activities accurately and then used "fudge" numbers to make the document total correctly.) In such cases, the individual service entry document is consistent, but its relationship to what actually occurred is suspect.

- **Automatic Recording of All Staff Time (Recommended)** — Some behavioral health information systems have the ability to "back fill" unrecorded time. Staff simply record the total number of hours worked and itemize those activities determined to be "key" by your organization. The system then automatically subtracts the hours recorded in specific activities from the total hours worked, creates an additional "overhead" activity for the difference and associates it with the staff person's cost center.

As a result, the system achieves full-time accountability for productivity, costing and payroll without making staff record everything they do (or play games with "fudge" numbers).

Which Time Increments to Record

- **Recording Services in Predefined Time Increments (Not Recommended)** — Most third parties payers reimburse services according to units of service based upon predefined time increments (e.g., 15 minutes). In addition, recent HIPAA regulations further reinforce this trend by mandating that service transactions be submitted and reimbursed according to predefined increments.

Given such external pressures, most behavioral health organizations have elected to have their staff record their services and activities rounded to the nearest unit (e.g., a 55-minute service is recorded as four 15-minute units of service, a 10-minute medication check is recorded as one 15-minute unit of service, a 20 minute medication check is recorded as one 15-minute unit of service).

Most billings will be unaffected by such a decision, but any pre-HIPAA services that require a different unit of service definition (e.g., 10 minutes) could be systematically misestimated. But for the most part, if billing were the only use of service information, recording in predefined increments wouldn't matter one way or another.

But billing isn't the only use of the information. Behavioral health organizations are service delivery organizations, and most of their budgets are directed toward service delivery. Therefore, the service and activity information that is recorded in an information system also serves as the primary data source for costing and, in some cases, payroll (see below).

For that reason, any systematic bias that exists in the way data are recorded could have a significant effect on computed costs. Let's consider an example where you want to negotiate a competitive contract to deliver medication assessments. You use the service data in your information system to compute the fee you should charge for delivering a 15-minute service and you come up with a figure of \$60. So what happens next?

One possibility might be that the average time for each service really is 15 minutes, your costs are correct, you get the contract and everything works out fine. However, there are a couple of other possibilities. What if your staff had been consistently recording 15 minutes for each service, but had only been spending an average of 10 minutes? When you computed your costs, you'd have overestimated what you'd have to charge by \$20 and would probably have lost the contract to a lower rate from a competitor. Likewise, if your staff had consistently spent 20 minutes on each service, you would have underestimated your costs by \$20, would probably have received the contract, and would have lost money on each service you provided from that point forward.

- Recording Actual Durations of Services and Activities (Recommended) — One of the great advantages of computerized information systems is their ability to aggregate and recode information for reporting purposes. Basically, that means that you don't necessarily have to record information in the same way you wish to report it; recording and reporting are separable.

When it comes to how you record service durations, that means you can have your staff record the actual durations of all activities, irrespective of the unit of service definition for any particular payer(s). Actual durations can be converted by the system into any unit of service definition required by a payer (e.g., 10 minutes, 30 minutes, 50 minutes, 1 hour, event). Bills can be computed correctly, time-based costing will be accurate, and payroll can be categorized appropriately (see below).

Service Recording and Payroll

- Recording Payroll Information Independently of Services and Activities (Not Recommended) — Few behavioral health organizations operationalize the obvious link between the service recording system and the payroll system. Despite the fact that both systems are designed to track what staff are doing with their time, most organizations create a separate timecard and have staff complete one each pay period (in addition to service entry documents).

As a result, staff have two independent processes for accounting for time spent (i.e., timecards and service entry documents) that must be kept in synch with each other.¹⁰ If the timecards are 100% accurate 100% of the time, they can only be as good as the daily service entry document is alone. What if they aren't 100% accurate 100% of the time and the two data sets differ? Which system do you trust?

*A man with a watch knows what time it is.
A man with two watches is never sure.*

Segal's Law

¹⁰ While I know that in your organization staff dutifully complete their timecards on a daily basis to ensure accuracy, there are some organizations out there (not yours, of course) where people simply fill in their timecards at the end of the pay period. It's always seemed interesting that staff who complete timecards on a "daily basis" often seem to have used exactly the same pen or pencil for every day in the payroll period. Go figure.

- Using Service Entry Documents for Payroll Information (Recommended) — With the addition of a few indirect service/activity codes to account for payroll related activities (e.g., vacation, sick leave), the service entry document process in most behavioral health information systems can also handle complete payroll timekeeping, thus eliminating the need for separate timecards.

Because billing, costing and payroll are all computed from the same data, they will all be consistent. That means you'll never again face an awkward question from an auditor about why you are billing for a particular service when your payroll records show that the staff person in question was on vacation at the time.

The need to get service entry documents turned in promptly for payroll will ensure timely recording of clinical services and scheduling changes. At the end of the pay period, you can use the system to report recorded services and activities aggregated into user-defined payroll categories for entry into the payroll process, thus eliminating the need for separate timecards and any resultant discrepancies.



Whether you adopt all or any combination of the above recommendations will depend upon your unique situation. What is important, however, is that you decide how to proceed and enforce your decisions. Whatever you decide, do not accept a *laissez-faire* approach to data collection. Such a decision (or lack of a decision, as the case may be) will deprive the organization of the continual flow of information about how its resources are being directed.

Mistake #1: Fail to Provide Adequate Training

Possibly one of the most prevalent implementation mistakes is failure to provide adequate training to the users of the system. Behavioral health information systems are often closely controlled by the individuals who manage the systems, and many of the people actually using the systems end up doing so without a great deal of formal training.

One of the problems of people working without proper training is that, when confronted with problems they don't understand, they tend to create "solutions" based upon what seems to work, rather than what the system requires or can do. Often, such "solutions" involve elaborate and time-consuming work-arounds and manual manipulation.

With very few exceptions, each work-around is an unnecessary manual intervention that directs the system to take some particular action, and unknowingly results in the "disconnection" of some other automatic system feature designed to achieve the same result.

How do such misconceptions of the system's features and functions get established? The answer relates to an organization's failure to provide comprehensive planning, training and professionalism in the implementation of the system. Instead, there is frequently a tacit assumption on the part of the organization as a whole that systems are "computer tasks" and relatively minor clerical components of the organization's functioning. Therefore, comprehensive training isn't required. The end product of such a lack of commitment to a system was characterized quite succinctly by one behavioral health organization describing the use of its information system — a system installed with few resources put into training:

"We've learned to make do with the parts of the system we've figured out."

The result? Many users do not understand the capabilities of the system to assist them with their daily tasks. Therefore, they create their own non-automated solutions.

People cannot be expected to behave in particular ways if they've never been provided with the tools and techniques required to support the desired behaviors. Therefore, the role of training in a consumer-centered organization is to help people understand the system they're using, and to provide them with the tools and techniques they need to put that understanding into action.

Mistake #2:

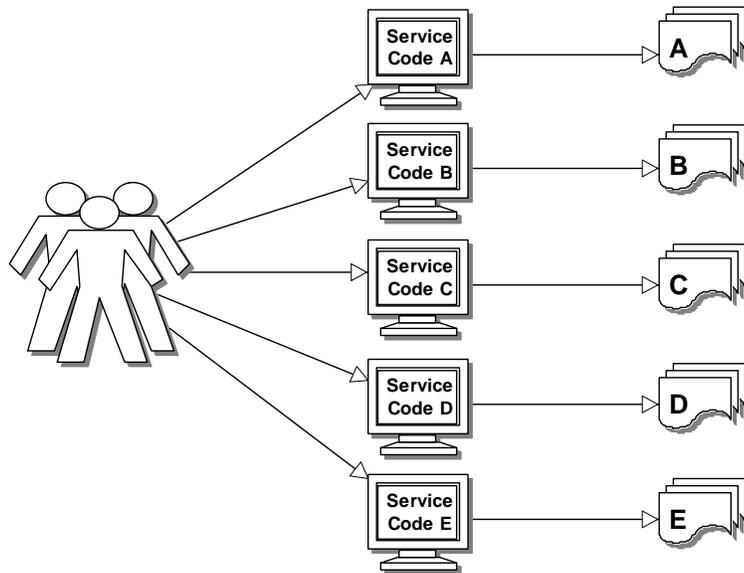
Ask People to Do the System's Work

One of the results of designing processes based upon “learning to make do with the parts of the system we’ve figured out” is that the system and the processes are seldom, if ever, set up in an optimized form. That is not to say that such a system doesn’t work. In fact, under the conditions in place when it was designed, it may work perfectly. However, such a design often works by placing the burden of success in the wrong place — on the people who provide the information rather than on the system itself.

Behavioral health information systems are complex. They have to be able to respond to multiple demands (shown as A through E on the right side of the figures below). For example, let’s assume that the demands in the diagram represent specific billing situations to which the system must respond (i.e., payers, rates, procedure codes, duration, provider credentials, programs).

There are two basic approaches to defining a system to respond to multiple demands — the “easy” way, where the people providing the data have to make all the decisions, and the “right” way, where the people only have to tell the system what happened and the system makes all the subsequent decisions.

The "Easy" Way
The People Do the Work



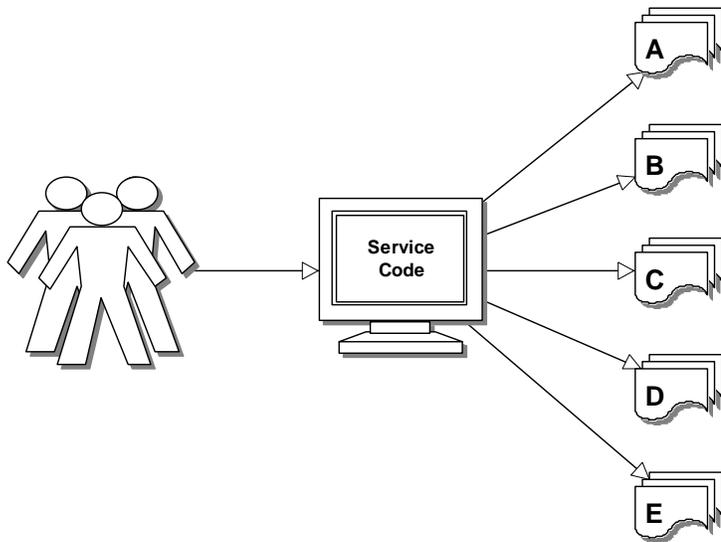
The “Easy” Way: The People Do the Work — The “easy” way to get a system to produce such a variety of results is to have a separate service code for each option (i.e., Service Code A generates result A, Service Code B generates result B, etc.). Given enough codes, you can produce almost any desired result.

The downside of such an approach, however, is that the staff who provide information to the system often have to know how the information will be used in order to know how to record what they did. In addition, they typically have to manage a large number of codes that describe the same general type of activity.

Given 1,000 different service-staff-program combinations from 10 service types, 10 staff disciplines and 10 programs, the “easy” way taken to its extreme involves 1,000 separate service codes, each with its own result. In such a scenario, any one staff member might have to manage as many as 100 separate service code-program combinations. The system, on the other hand, does very little. It simply takes the information provided, looks up the corresponding value and reports it.

The “Right” Way: The System Does the Work — Given the same 1,000 different service-staff-program combinations, the “right” way would be to set up 10 service codes and let the system do the work of identifying the staff person’s credentials and the service program. The system could then identify the rules for the resultant combination and report the result. In this second scenario, any one staff member would only have to manage 10 separate service codes (and they would be the same service codes used by other staff disciplines to record the same service). In other words, the staff person would only have to record what he or she did, and not also his or her credentials and program.

The “Right” Way The System Does the Work



While the above example is based upon a billing scenario, the principle involved holds for other areas, as well. The bottom line is that a system designed in the “easy” way usually ends up being far more complex and far less flexible than one designed the “right” way.

Mistake #3:

Treat System Modules as Separate Systems

One common implementation mistake is to let the financial needs of the organization drive the design and definition of the system's structure and content, or to assume that decisions about the structure and content of financial applications can be made independently of the rest of the system (i.e., financial staff make the decisions they want and the information systems staff do the rest). In such situations there is little enterprise-wide leadership for the overall information system efforts.

Maintaining such a separation between financial and non-financial application areas might work if the areas are using separate software applications, but it becomes problematic when they are all using modules of the same system. Decisions made in one system area often affect the results in another. For example, a change to a staff member's credentials is certainly a human resources and payroll issue. However, it is also a billing and accounts receivable issue, as clinical credentials can affect the rate that can be charged for a given service. It's also a scheduling issue, as staff credentials are key to identifying eligible and appropriate staff to deliver services. It's also a service authorization issue, because a service that was authorized yesterday when the staff member had credentials "A" may no longer be authorized now that the person has credentials "B." The list goes on.

In a system implemented the "Easy Way" as described above, human resources people would update their part of the system; payroll people would update their part of the system; financial services people would update their part of the system; and somebody else would review schedules and authorized services to see that there were no conflicts. In order for the system to function correctly, everything would have to be done correctly and consistently.

In a system implemented the "Right Way," the individual responsible for updating credentials would make a single change, and all the other areas would automatically draw upon the updated information with little or no manual intervention.

Mistake #4:

Run the System as a Billing System

One of the most common implementation mistakes is to assume that the primary function of a behavioral health information system is to function as a billing system. The billing emphasis then shapes the definition of service codes, service recording procedures, and other operations. This is not to imply that a comprehensive information system is not a billing system, but that it can also be much more. The well-designed information system manages billing as one significant part of its operations.

To limit the focus to billing during the implementation of a system is to significantly underutilize the system's potential. Therefore, you should plan for the use of any system as an enterprise-wide information system in addition to its use as a billing system.

9

Staffing an Information System

As is the case with any endeavor, success in operating a behavioral health information system is dependent upon the quality of the people who are doing the job. Having the right staff in charge of the design and operation of your information system will pay dividends long into the future.

In addition to having good people, however, you must have a well-structured environment in which they can realize their potential. Therefore, when designing and staffing an information system make sure you don't fall into the trap of assuming that the resultant department will be a "technical" one that is somehow different from the other parts of the organization; the information system department should be created along the same consumer-centered lines as the other departments, processes and procedures in your organization.

The Role of the Executive

... a riddle wrapped in a mystery in an enigma, but there is a key ... "

Winston Churchill

Let's get one thing clear at the beginning. The evolution of information systems should be guided by the executives who will use them, not by the staff who operate them. Unfortunately, a large part of technology development is focused more on how computers and software work and less on the how behavioral health organizations work. Why? Because the people who are most vocal about information systems (as opposed to information, *per se*) are technical people. Executives often put up with inadequate information, assuming that "it's all about computers, and my staff will take care of it." That's a problem.

I recently made a presentation to a group of behavioral health executives about re-engineering for change. At one point I offered the following warning sign of organizational failure,

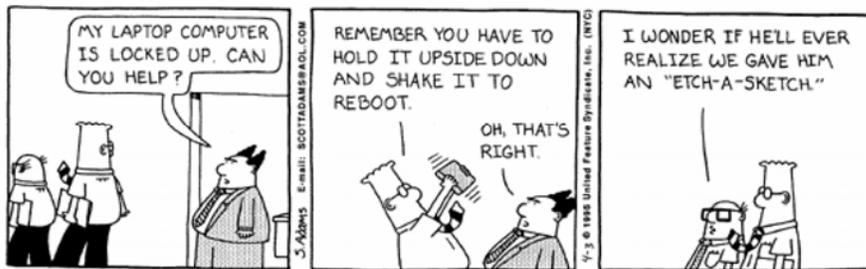
"I get all these reports and I still can't tell what's going on."

At that point, one of the CEOs in the audience laughed out loud. "Exactly!" he said.

Without realizing it, in his one word response he had summed up both sides of the problem. On the one hand, he knew what he wanted and that he wasn't getting it. On the other hand, he seemed resigned to the status quo.

Apparently he didn't fully understand that it's not the executive's job to try to figure out what's going on from reports; it's the reports' job to clearly provide the information the executive already knows he or she needs. If your current reports don't do that, get new reports. If your current system can't produce those reports, get one that can. If your current system can produce them, but your existing staff lack the talent to make it happen, get new staff. That may sound cold and Machiavellian, but you don't have a choice.

DILBERT by Scott Adams



Dilbert © United Features Syndicate

Executives need to be involved in information technology planning at all levels, including participation in system vendor user groups. By assuming that such groups are just for the technical types, executives are missing a great opportunity and end up turning over the evolution of their primary decision-making tools to people who generally don't know how (and why, and when) to use them. Would you rather drive a car designed by someone who actually drives cars or somebody who has never had a driver's license? Same thing. So what happens when technical people are the only ones who attend information system user group meetings? People spend their time talking about software and technical issues, and seldom address techniques to improve the management of the organization. The technical stuff is certainly important, but the only reason you have the system in the first place is to provide information to decision makers.

One consistent theme throughout the HSC Re-engineering Series has been the creation of organizations that can survive (and even thrive) in uncertain times. Equally consistent has been an emphasis on the value of information. In his comment above, Churchill noted that there is a key even in the middle of uncertainty. In our case, that key is information. With information, you stand a chance of surviving; without it, you might as well close up shop and save yourself the hassle.

Therefore, the primary criterion when selecting information system staff should be based upon their ability to produce information, not to run computer systems. Always keep that in mind.

Ready to continue?

Designing an Information System Department

Because the implementation of a comprehensive information system will affect all facets of your organization, structuring an IT department with an organizational (as opposed to a departmental) perspective is in order. Creation of an information system department designed to serve the overall organizational needs will be driven by the following questions:

- **Separate Department** — Should a separate department be created? If so, what form should it take?
- **Staffing of the Department** — How should the department be staffed? What are the qualifications required of the departmental manager?
- **Management Position and Accountability** — Where should the department “fit” into the organization? To whom should the department manager report? What accountability should the department be able to require of others?
- **Functional Role** — What should be the overall “mission” of the information system department? Within the department, who reports to whom?
- **Physical Facilities** — What physical facilities (e.g., office space, computer rooms, storage, communications) likely will be required for the department?

Once you have an idea of how to respond to the questions, your answers can form the nucleus of a planning process for creating and staffing the information system department.

IT Department Operations

Information system departments frequently function in a reactive (as opposed to customer-service oriented proactive) mode. Focus is often placed more upon getting data entered and reports run than upon determining the information needs of the rest of the organization. One of the downsides of such an internally-focused, “get-the-data-in-and-out” mode of operation is that it tends to insulate (and isolate) the information system function from the global operations of the organization. Symptoms of such insulation include:

- End users in other departments who don’t know how to ask for information because they don’t know what’s available.
- IT staff who are too busy entering data and running reports to learn what people in other departments need to do their jobs.
- Daily management decisions based on monthly reports.
- IT staff who say, “Why don’t they ask?” instead of, “What do you want?”

It may be that a reactive, “data processing” approach served adequately in the past, but changes in the behavioral health industry will be better addressed if organizations as a whole and the IT Department in particular move toward the adoption of a customer service model of operations.

In the case of the IT Department, the end users of the system are its customers. End users are not limited to the support staff who process the information for each department; rather, the end user to which we refer is any staff person making day-to-day decisions that need to be based upon system data.

IT operations should be adjusted to ensure that the IT staff can actively solicit input from all other departments — not about what reports they think they want, but about what they need to do their jobs.

Establishing Formal IT Department Goals

Formulation of a set of goal statements is an appropriate first step in the creation of an IT Department that defines its role as a customer service department within a consumer-centered organization. Such a process will help staff members begin to focus on their roles as information providers instead of information processors.

We recognize that complete evolution from a reactive department to a proactive one is frequently dependent upon a number of issues, including hardware configuration, implementation of ancillary systems, amount of system access, degree of distributed data entry and other factors not under the immediate control of the IT Department. However, it is unlikely the evolution will occur at all unless there is a formal plan, and the creation of formalized goals and objectives can serve as a first step in such a plan.

Sample Goal Statements — The following goal statements were adapted from a similar list developed by one of our clients, and are offered as a suggestions for similar goals for a typical IT Department.

- **GOAL:** *Utilize all aspects of our existing computer systems.*
- **GOAL:** *Compile a manual of written procedures and keep it updated.*
 - *Set teams for procedures.*
 - *Identify the processes that need procedures – within the team.*
 - *Write the procedures – team members decide who does what.*
 - *Continually review the procedures for content.*
 - *Put manual together and get copies made and distributed.*
- **GOAL:** *The entire team should follow all the same guidelines and procedures for the same process.*
 - *Get a written procedure manual done.*
 - *Facilitate cross-training.*

- **GOAL:** *Create and maintain a safe environment for communication.*
 - *Obtain permission from each other to be honest, speak one's mind and be truthful.*
 - *Always use constructive, non-accusatory comments.*
 - *To have a positive attitude – let's not take it personally.*
 - *Be able to say "you are hurting my feelings" or "not right now".*
 - *Be open-minded: listen to what is being said; look at the problem; repeat back your understanding of the issue.*
- **GOAL:** *Maintain a good reputation as being friendly, knowledgeable professionals.*
 - *Don't discuss internal departmental problems outside the department.*
 - *Develop better communication with other departments – choose words wisely.*
 - *Meet at least monthly with clinical and financial team leaders to find out what's going on.*
 - *If you don't know the answer, say you will get back to the person asking the question.*
 - *Keep cool.*
- **GOAL:** *Maintain good communication skills.*
 - *Become a sounding board; write down thoughts.*
 - *Go to the person affected first.*
- **GOAL:** *Provide prompt processing of all information system documents and reports.*
 - *Data entry and reporting will be processed in ___ working days (maximum).*
- **GOAL:** *Work harmoniously with each other to accomplish our tasks more effectively.*
 - *Go to the person(s) affected to deal with the issue; don't talk to everyone else instead.*
 - *Choose words wisely; be non-accusatory.*
 - *Share knowledge with all team members.*
 - *Trust other's abilities and knowledge.*
 - *Follow the same policies and procedures that everyone else does.*
- **GOAL:** *Timely and accurate input of consumer account financial information.*
- **GOAL:** *Implement improved documentation for consumer files.*
- **GOAL:** *Constantly brainstorm in an effort to improve information system procedures.*

Staffing Roles & Responsibilities

You should review and structure the staffing patterns within your IT Department from a functional-based (as opposed to a position-based) perspective. When one considers the roles the IT Department must play as a customer service organization, the conclusions might not be the same as would be dictated by a traditional, hierarchically based structure. Key functions within an IT Department include:

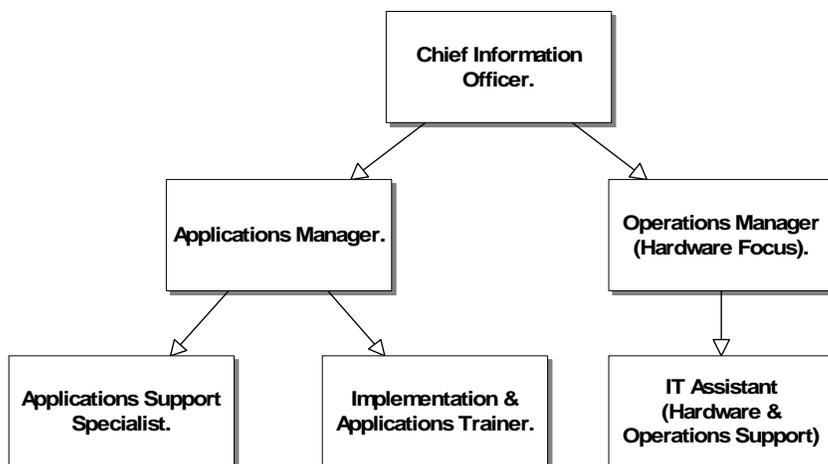
- *Departmental Management and Guidance*
- *Centralized Hardware & Operating System Support*
- *Major Applications Development & Training*
 - *Implementation of Software Packages*
 - *Report Development*
 - *Consultation to Other Departments*
 - *Ongoing Training (Refresher Training)*
 - *Training of New Staff*
- *Personal Computer Support*
 - *Support of Personal Computers & Printers*
 - *Personal Computer Application Standardization & Support*
- *Data Entry (Distributed)*

The following diagram outlines a staffing structure appropriate to a consumer-centered behavioral health organization. Note that there is not a one-to-one correspondence between boxes and people. In a larger organization, each of the boxes could represent a separate person; in a smaller organization several boxes might be the responsibility of a single individual.

However, irrespective of your organization's size, the particular roles represented remain critical, and the tasks assigned to each must still be performed if you are to get the maximum benefit out of your information system.

Suggested job descriptions for the various roles are included the following pages.

IT Department Functional Staff Roles



Chief Information Officer

- Responsible for improving the efficiency and effectiveness of ongoing information processes through the identification of system problems, the recommendation for specific changes and/or resources required, and the implementation of those improvements, as authorized.
- Participates in the planning, development and organization of organizational programs, policies and procedures.
- Responsible for oversight of the security of computer operations, including documentation of all procedures, backup of all programs and data, and maintenance of appropriate environments.
- Responsible for the supervision, orientation and training of assigned staff. Participates in the personnel process, including actions such as hiring, discipline, grievances and performance evaluations.
- Serves as in-house systems analyst across all organizational areas to assist in determining information needs and how best to organize systems, manual or automated, required to meet those needs.
- Assists in the preparation of short-term and long-term financial plans, including annual budgets and capital acquisitions.
- Responsible for oversight of organizational reporting needs.

Applications Manager

- Responsible for the operation of the applications software and monitoring of those functions and activities throughout the organization that affect the operation and efficiency of the system.
- Responsible for improving the efficiency and effectiveness of ongoing information processes, including establishing and maintaining system standards, monitoring system flows and outcomes, recommending changes and implementing improvements as directed.
- Keeps current on all new application software enhancements and makes recommendations on appropriate changes to the information system.
- Responsible for performing audits of data integrity and overseeing the management of all system control files.
- Responsible for regular archives and the installation of any application software revisions.
- Responsible for the supervision, orientation and training of assigned staff. Participates in the personnel process, including actions such as hiring, discipline, grievances and performance evaluations.

- Assists the Chief Information Officer by developing project specifications and supervising the writing, testing implementation and documentation of all project procedures, programs and reports.
- Assists the Chief Information Officer in the preparation of the yearly budget requests and is responsible for preparing appropriate requisitions as requested.
- Assists the Chief Information Officer in providing management level reporting, including units, staff hours, state statistical and survey reports and other ad hoc reports as requested.

Applications Support Specialist

- Responsible for generation, printing and distribution of service entry documents. Answers the telephone, takes messages, and relays information to IT staff as appropriate. Tracks the timeliness of data entry, files service entry documents and enters any necessary data adjustments.
- Records and reports any feedback from program areas on specific needs, recommendations or problems as they relate to the primary application or other software. Maintains standards in any output from the application software and encourages standardization of procedures involving computer use throughout the organization.
- Responsible for development, testing and implementation of computer applications as needed.
- Responsible for performing regular archives, installing any application software upgrades and reviewing any application vendor bulletin board or web site for program revisions.
- Assists the Applications Manager in the preparation of various reports and billing formats.
- Provides support on the use of standard application software and PC applications.
- Assists Applications Manager in assuring the security of computer operations by monitoring staff changes, system access and menu authorizations.
- Assists the Applications Manager in monitoring PC security, including reporting unauthorized software use.
- Assists the Applications Manager in the management of system database files, control files, tables and report specifications.
- Assists the Applications Manager in the preparation of software requisitions.

Implementation & Applications Trainer

- Assists the Applications Manager in the training of all staff on the use of computers as part of their job responsibility, and is responsible for providing manuals of computer procedures pertinent to the various program areas.
- Assists the Applications Support Specialist in the preparation of various reports and billing formats.
- Responsible for the development and maintenance of a standard format for any documentation and manuals written or distributed by the IT Department. Assists the Applications Manager in providing manuals of computer procedures pertinent to the various program areas.
- Coordinates the training of all staff using computers as part of their job responsibilities. Trains staff on use of application software.
- Trains area support staff on service entry document input and serves as a backup for data entry for the smaller program areas.

Operations Manager

- Directs the operation and maintenance of all automated data processing operations, including the application server and PCs.
- Responsible for the daily operation of the primary system; provides software and hardware support as needed.
- Responsible for monitoring system performance, including the communications network.
- Keeps current on all new hardware advancements and makes recommendations to the Chief Information Officer regarding appropriate changes to the computer system.
- Assists in the analysis of any equipment needs related to the implementation of new projects. Coordinates the purchase and installation of any new equipment.
- Assists the Chief Information Officer in the preparation of the yearly budget requests and is responsible for preparing appropriate requisitions as requested.
- Assists in improving the efficiency and effectiveness of ongoing computer operations, including monitoring all IT production and quality indicators, and the establishment and maintenance of hardware and software standards throughout the organization.
- Assists the Chief Information Officer in assuring the security of primary system and PC operations, including the monitoring of daily backup of system files, assignment of system access, documentation of procedures and maintenance of appropriate environments.

- Coordinates with the IT Applications Manager (and through the Applications Manager the Implementation & Applications Trainer) regarding the training of all staff on the use of computers, and provides any information pertinent to the documentation of computer procedures.
- Responsible for the supervision, orientation, and training of assigned staff. Participates in the personnel process, including actions such as hiring, discipline, grievances and performance evaluations.
- Assists the Chief Information Officer in providing management level reporting as requested.

IT Assistant

- Responsible for the basic configuration and installation of PCs and related peripherals. Loads operating system and application software as appropriate, installs and configures internal hardware options, and provides troubleshooting and maintenance services for end users.
- Assists the Operations Manager in the setup and maintenance of all computer equipment, installs communication software and some application software.
- Assists Operations Manager in providing low level hardware support related to printers, terminals, and modems.
- Assists the Operations Manager in determining users' hardware needs.
- Assists the Operations Manager in monitoring the security of the microcomputer system, including virus checking, unauthorized software use and PC backups.
- Performs a daily backup of all minicomputer program and data files; runs periodic database audits, and tracks system disk space and performance.
- Provides hardware support for terminals and PC equipment. Does hardware repairs as expertise allows.
- Responsible for the maintenance of an inventory of all computer hardware and software.
- Does all data entry for IT Department, including updating user-defined databases, and assisting with special projects. Maintains lists for service entry document generation and area reporting.
- Responsible for requisition of office supplies and materials as needed.
- Responsible for requisition of printer forms and ribbons.

Staff Training

The IT Department should develop a comprehensive program for ensuring that all staff are well-trained in the operation and support of all software and hardware under their control. Presence of such a plan is a must! You should no more expect an information system guided by untrained staff to support the requirements of your organization than you should expect to be able to fly safely with a complete novice in the cockpit.

The training plan should be based upon the functional tasks of the IT Department, instead of the career path of the individual. Multiple staff should be trained in all core functions of the application software.

Industry Compensation Levels

As an indicator of the current compensation levels being received by information systems professionals, we have included the results of a 1997 Computer Professionals Salary Analysis conducted by Michael Thomas, Inc., a Worthington, Ohio firm that provides technical recruiting services to local industry in Ohio.

The figures quoted are not necessarily representative of the behavioral health industry (which usually compensates at a level significantly lower than regular industry), but they do provide some indication of the relative cost of qualified information systems professionals. Although the numbers are out of date, they still look pretty good when compared with typical behavioral health industry salaries. We regularly encounter behavioral health organizations that pay their staff less than half of the ranges listed, yet expect those individuals to function across more than one of the areas listed below. Then those same organizations are puzzled as to why they can neither retain those staff once they are trained nor recruit replacements.

Behavioral health has come of age, and now must rely heavily upon technology to meet the demands of managed care, competition and other emerging initiatives. As an industry it can no longer expect to meet the coming challenges with poorly trained and inadequately compensated staff.

Management Professionals

- **Director or Chief Information Officer**
Controls overall activities, including analysis, programming, and operations, through managing subordinates. Reports to top management. May include executive benefit perquisite package.
Range: \$100,000 to \$180,000 Average: \$115,000
- **Systems Manager**
Assists Director or VP in controlling Applications section. May be titled Director in medium-sized installation. Will supervise Senior Project Managers in large settings.
Range: \$65,000 to \$98,000 Average: \$78,000
- **Senior Project Manager**
In a large installation, project responsibility over Senior Systems Analysts, Programmer Analysts. Has hire, fire and salary review responsibilities.
Range: \$56,000 to \$72,000 Average: \$67,000
- **Manager of Software Technical Support**
Responsible for all aspects of telecommunications and or operating systems software.
Range: \$63,000 to \$88,000 Average: \$76,000
- **Database Administrator**
Responsible for all aspects of database design, security and integrity. Usually manages one or more subordinates.
Range: \$56,000 to \$75,000 Average: \$70,000
- **Manager of Operations**
Does not include systems software. Usually responsible for multiple shifts through supervisors and senior operators.
Range: \$48,000 to \$67,000 Average: \$60,000

Systems Software/Network Communications Professionals

- Senior Systems Programmer or Network Design Analyst
Design or installation and support of operating or communications systems software. May include some planning or training duties.
Range: \$52,000 to \$72,000
- Systems Programmer or Network Operations Analyst
Similar responsibilities, lesser experience.
Range: \$43,000 to \$54,000

Applications Design and Programming Professionals

- Senior Systems Analyst or Project Leader
May give direction to lower classifications. Has project responsibility. May occasionally program, but primarily involved in analysis, design, user relations, project coordination or supervision.
Range: \$48,000 to \$65,000
- Systems Analyst/Senior Programmer Analyst
Primary responsibility is usually design and analysis related, but will program 10-30%. May direct others functionally, but primarily an individual contributor.
Range: \$44,000 to \$57,000
- Programmer Analyst
Some design, but more programming, usually 50-70%. Works under general supervision, but competent at a high technical level.
Range: \$38,000 to \$53,000
- Programmer
Under direct supervision, charts, codes, debugs, documents programs. Competent at most levels; needs instruction at others. Light analysis only.
Range: \$35,000 to \$43,000

- Entry Level Programmer
No previous job experience, but fairly complete training. Usually Associate or Bachelors Degree completed
Range: \$28,000 to \$35,000
- Database Analyst
Facilitates database design and use.
Range: \$46,000 to \$65,000

Local Area Network/Wide Area Network Professionals

- LAN/WAN Manager
Technically competent; also may supervise others.
Range: \$53,000 to \$78,000 Average: \$72,000
- LAN/WAN Analyst
Technical duties in the design and implementation of PC or PC host LANs and WANs.
Range: \$42,000 to \$68,000

10

Appendix A: Data Needed for Decision Making

In an earlier chapter we stated that the primary business of the behavioral health system is the delivery of services to people in need. We further noted that the basic service unit could be broken down into a multi-part question, which for the current discussion, can be simplified to the following:

Who received what services from whom, reimbursed how, with what result, and at what cost?

Each of the traditional types of data in a behavioral health information system (i.e., services, demographics, outcomes and financial) represents a different set of information related to the multi-part question. The table below shows the relationships among the pieces of the multi-part question and various data sets.

If the data sets are fully integrated, virtually any reports supported by the collected data can be prepared. If the components are not integrated, the data can be brought together in a separate combined database and linked with a common consumer identifier.

| | Who Received | What Services | From Whom | Reimbursed How (Fee, Fund Source) | With What Result | At What Cost | Non-Service Related Financial Data |
|-------------------|--------------|---------------|-----------|-----------------------------------|------------------|--------------|------------------------------------|
| Services Data | ● | ● | ● | ● | | ● | |
| Demographic Data | ● | | | | | | |
| Outcomes Data | ● | | | | ● | | |
| Financial Data | | | | | | | ● |
| | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Combined Database | ● | ● | ● | ● | ● | ● | ● |

The combined database can be a powerful and highly effective tool if the following conditions are met:

- **Comprehensive** — The database must be comprehensive, and either include the wide range of pre-formatted reports users require or provide the flexibility for users to generate those reports themselves; and
- **Timely** — The database must be timely, and be able to provide those reports whenever they are required for effective decision-making (e.g., quarterly, monthly, daily, on-demand).

HIPAA and other regulatory requirements may necessitate some form of encryption of the identifier as data are moved to a combined database. In a system with an encrypted identifier, it is possible to relate services, outcomes and core demographics to a given consumer, without being able to identify the consumer. In other words, you can have “individually identifiable” information without having “individually identified” information.

Multiple Users of Behavioral Health Information

Behavioral health data are used for decisions by numerous constituent groups, including (but not limited to) consumer and family advocates, consumers and families, provider staff and agencies, county or regional behavioral health boards and state authorities.

The table on the following pages identifies some of the different constituent groups and a representative sample (but certainly not all) of their anticipated data uses. For each anticipated data use, the table also identifies the factor(s) driving the data use (i.e., care management, quality assurance, accountability, regulatory requirement), provides a general description of the type(s) of information required, and notes which of the “pieces” of information from the table above are components of the anticipated data use.

Any data use that requires information from more than one of the traditional data sets (i.e., services, demographics, outcomes, financial) needs to have a link through the identifier in the first column (i.e., the common consumer identifier). From an information system perspective, the table is a threshold table — for any given constituent group, as soon as one ongoing information need requires a level of information (e.g., What Result), that constituent group’s information system must contain that information. Once the information exists in the system, it should be available for other reporting needs, both current and future.

DATA NEEDED FOR DECISION MAKING

| | Sample Data Use | Care Management | Quality Improvement | Accountability | Regulatory Requirement | Type of Information Required or Rationale | Who Received | What Services | From Whom | Reimbursed How | With What Result | At What Cost | Non-Service Financial Data | Other (e.g., External Data) |
|-----------------------------|---|-----------------|---------------------|----------------|------------------------|--|--------------|---------------|-----------|----------------|------------------|--------------|----------------------------|-----------------------------|
| Consumer & Family Advocates | <i>Support active participation and advocacy of consumer and family organizations on behalf of persons with mental illness.</i> | | ● | ● | | <i>Use profiles based upon aggregate information to identify trends in consumer strengths and challenges based upon services used; assess degree to which consumer needs and expectations are being met.</i> | ● | ● | | | ● | | | |
| Consumer & Family | <i>Empower the individual consumer by incorporating his/her self-assessment into Treatment Planning.</i> | ● | | | | <i>Use individual outcomes over time to identify strengths and weaknesses. Self-assessments, individual scores on items, scale and subscale scores.</i> | ● | | | | ● | | | |
| Consumer & Family | <i>Target behaviors of greatest interest and value to the individual consumer.</i> | ● | | | | <i>Use individual outcomes over time to identify strengths and weaknesses. Self-assessments, individual scores on items, scale and subscale scores.</i> | ● | | | | ● | | | |
| Agency | Provider – Develop Treatment/Individual Care Plans for individual consumers. | ● | | | | <i>Use individual scores over time to identify strengths and weaknesses. Self-assessments, individual scores on items, scale and subscale scores.</i> | ● | | | | ● | | | |
| Agency | Provider – Develop programs relevant to consumers' needs. | | ● | | | <i>Use individual scores over time to identify strengths and weaknesses. Self-assessments, individual scores on items, scale and subscale scores.</i> | ● | ● | ● | | ● | | | |
| Agency | Administration – Provide performance measurements that allow agencies to better understand service utilization; and help direct resources. | | ● | | | <i>Aggregate outcomes by significant demographic and program variables.</i> | ● | ● | ● | | ● | ● | | |
| Agency | Administration – Provide input for the agency's needs assessment, provide a measure of effectiveness and assess gaps in services. | | ● | | | <i>Aggregate outcomes by significant demographic and program variables.</i> | ● | ● | | | ● | | | |

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| Agency | Administration – Provide performance measurements that allow agencies to address regulatory requirements. | | | ● | ● | Aggregate or case-level data depending upon particular regulatory body. | ● | ● | ● | | ● | | | |
| Agency | Administration – Use the data for marketing, attracting funding resources, donors, new customers, identify goals/objectives for agency's strategic plan. | | | ● | | Aggregate outcomes by significant demographic and program variables. | ● | ● | | | ● | | | |
| Agency | Consumer Profile Reporting – Construct consumer profiles using a variety of programmatic and socio-demographic descriptors. | | ● | ● | | Profiles of consumers can be compared to profiles of the population of the area served to: (1) determine whether the agency is serving representative portions of the population; (2) identify high-risk populations; (3) evaluate whether program or staffing patterns should be changed to meet identified consumer and community needs; and (4) satisfy certain consumer profile reporting requirements of other entities. | ● | ● | ● | | ● | | | ● |
| Agency | Clinical Reporting – Provide information for decision making about activities related to contact, intake and admission, treatment program design, case management, direct and indirect services, discharge and post-discharge. | ● | ● | | | Examples of clinical reporting include: (1) specific treatment goals and objectives; (2) tabulation of assignment to and movement between treatment programs and/or organizational units; (3) delineation of medications and medication profiles; (4) reporting of clinical assessments and testing; (5) reporting consumers' progress and outcomes; (6) recording of services provided during individual treatment events; (7) reporting of planned events and activities; and (8) tabulation of consumer satisfaction surveys. | ● | ● | ● | | ● | | | ● |

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| Agency | Direct Services Activity Reporting – Provide information for decision making about activities related to all clinical transactions, including preadmission contact, screening and intake, case admission, program assignment, treatment planning, service delivery, case review, referrals, discharge, post-discharge and referral follow-up, and case closure. | ● | ● | | | Examples of direct service activity needs could include: (1) consumer identifying data; (2) staff identifying data; (3) consumer socio-demographic data as needed; (4) case management data; (5) presenting problems and diagnoses; (6) medication records; (7) level of functioning or other evaluative assessments; (8) testing results; (9) treatment goals and objectives; (10) outcome measures; (11) referral data; (12) fees charged; (13) staff time spent; (14) planned events; (15) case dispositions; and (16) consumer satisfaction data. | ● | ● | ● | ● | ● | | | ● |
| Agency | Clinical Data Inquiry – Provide immediate information for decision making about an individual consumer's status. | ● | ● | | | Examples of clinical data inquiries could include: (1) consumer admission data; (2) case histories; (3) program enrollments; (4) medical data; (5) treatment events; (6) current status; and (7) discharge/inactivation. | ● | ● | ● | | ● | | | |
| Agency | Budget Preparation & Reporting – Preparation of new fiscal year budgets and modification of existing budgets. | | ● | ● | ● | Examples of budget formats include tabulations by: (1) revenue source; (2) program area; (3) organizational unit; and (4) general ledger account number. | | ● | ● | ● | | ● | ● | |
| Agency | Consumer & Third Party Billing – Preparation of bills and tracking of accounts receivable for direct consumer and third-parties). | | | ● | ● | Examples of billing reporting include: (1) periodic invoices and statements (per payer and/or HIPAA requirements; and (2) aged receivables reports; (3) cash receipts journals. | ● | ● | ● | ● | | ● | | |
| Agency | Financial Reporting – Provide reports based upon financial data. | | ● | ● | ● | Examples of financial reporting include: (1) revenue and expense reports; and (2) asset and liability reports. | | ● | ● | | | ● | ● | |

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| Agency | General Accounting – Provide accounting data that conform to specific policies which are derived from funding agency requirements, audit requirements, and general guidelines. | | ● | ● | ● | Examples of general accounting reports include: (1) detailed journal reports; (2) summary and detail trial balances; (3) posting summaries; (4) comparative revenue and expense reporting; and (5) asset and liability reporting. | | | | ● | | ● | ● | |
| Agency | Fund Accounting – Provide reports of revenues and expenditures by source of funds. | | ● | ● | ● | Examples of fund accounting capabilities include: (1) ability to track and report accounting data in a form that permits implicit or explicit identification of the funding source in the coding of financial transactions; (2) reporting based upon the source of funds; (3) information about encumbrances of funds based upon purchase/contract commitments; (4) tracking of distribution of expenditures to the source(s) of funds used; (5) accounting for the application of matching funds; and (6) tracking of “pooling” of resources for use in accounting for matching funds. | ● | ● | ● | ● | | ● | ● | |
| Agency | Cost Accounting & Managed Care – Ability to relate the use of resources for service delivery to the amount of service delivered. | | ● | ● | ● | Examples of cost accounting capabilities include tabulation of costs and outcomes by: (1) organizational unit; (2) by type of service delivered; (3) by discipline delivering the service; and (4) by consumer receiving the service. | ● | ● | ● | ● | ● | ● | ● | |

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| Agency | Statistical Analysis & Reporting – Provide analyses and reports for decision making about activities related to general operations of the organization. | | ● | ● | | Examples of statistical analyses and reports could include: (1) number of consumers admitted; (2) number of consumers served; (3) profile of services rendered to a given population; (4) socio-demographic profiles of consumers served; (5) diagnoses and programmatic profiles; (6) trends in service delivery; and (7) cross-tabulation of diagnoses with length of stay. | ● | ● | | | | | | |
| County/ Board | Care Management Staff – To ensure that consumers receive quality care, boards are responsible for conducting random clinical audits and investigating "high" or "low" users. | ● | | | | Aggregate outcomes by significant demographic and program variables. | ● | ● | ● | ● | ● | ● | | |
| County/ Board | Administration – Develop services to meet the behavioral health needs of the community. | | ● | | | Boards need to know what areas (outcome domains) are problematic to plan for services to meet needs. | ● | ● | ● | | ● | ● | | |
| County/ Board | Administration – Conduct cost-effectiveness studies to identify the most effective treatment approaches. | | ● | | | Aggregate outcomes by significant demographic and program variables, plus service and cost data. | ● | ● | | | ● | ● | ● | |
| County/ Board | Administration – Responsible for growing or shrinking service purchases from agencies. Reward agencies for exceptional performance. | | | ● | | Many sources of information are needed in making such decisions. Consumer outcomes data could be used as one element in the decision-making process. Therefore, Board staff need a valid way of comparing the outcomes of consumers across agencies. | ● | ● | | | ● | ● | | |

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| County/ Board | Administration – Secure funding for future services by demonstrating to various stakeholders that local services are making a positive impact on consumers' lives. | | | ● | | Aggregate scores by significant demographic and program variables. | ● | ● | | | ● | | | |
| County/ Board | To establish a Unified System of Treatment and ensure Continuity of Care | | | ● | ● | Information that allows individual consumers (i.e. demographic information) to be tracked across multiple agencies to establish what services are provided (i.e., claims information) and with what effect (i.e., outcome information), so as to allow boards to determine if, in fact, there is a system of care that functions in a unified, coordinated fashion for the benefit of its enrollees. Individual level data enables boards to perform analysis across agency boundaries. The fact that many consumers are going to multiple agencies is one of the biggest issues in boards' efforts to assure continuity. | ● | ● | ● | | ● | ● | | |
| County/ Board | Review & Evaluate Services | | ● | ● | ● | Consumers may consent to release data from the warehouse to be matched with additional matching data for the purposes of research and evaluation. Boards need to select individuals receiving services for inclusion in satisfaction surveys based upon specific criteria as suggested by the data. | ● | ● | ● | | ● | ● | | ● |

Health Systems Consulting

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| County/ Board <i>To establish a Utilization Review Process as a Part of Agency Contracts for Services.</i> | | ● | ● | ● | <i>Utilization review requires careful consideration of consumer-specific clinical and outcomes information. It should not be limited solely to questioning of all claims that exceed some arbitrary threshold. To do this requires maintenance of a database that captures all of these relevant factors.</i> | ● | ● | ● | ● | ● | ● | | |
| County/ Board <i>Assess Cost Effectiveness</i> | | | | ● | <i>Individual consumers' outcomes, behavioral health and service data will need to be combined to assess cost effectiveness. It is not possible to determine cost-effectiveness with only service information; the "Effectiveness" part of the equation requires that outcomes information be given equal weight. Cost-effectiveness may need to be evaluated on a case by case basis to determine the best or most cost-effective choice of care. The most cost-effective care may be a package delivered by multiple providers.</i> | ● | ● | ● | ● | ● | ● | | |
| County/ Board <i>Clinical Audits</i> | | | ● | ● | <i>Having consumer level data available will allow boards to draw cases to be included in the audit. Individual consumer claims will be both randomly and selectively chosen for review in audits.</i> | ● | ● | ● | | ● | | | |

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| County/ Board | Pre-Screenings & Authorizations | | | | ● | Boards (and/or their designees) need ready access to the treatment history of their enrollees, to make responsible decisions about how to best address current clinical needs and to avoid repeating prior strategies that proved to be ineffective. Boards seek to provide the least restrictive environment for consumers faced with hospitalization; this rule gives boards the tools to identify the best mix of services to address consumers' needs. | ● | ● | ● | ● | ● | ● | | |
| County/ Board | Program Development & Needs Assessment | | | | ● | Program development and needs assessment are based upon supporting data. Consumer level data enable a level of analysis that looks at services patterns that cut across agency boundaries. | ● | ● | ● | | ● | | | ● |
| State Authority | Policy and Planning Staff, Area Directors – Compare similar delivery systems to establish a basis for judging effectiveness, intervening and planning for improvement. | ● | | | | Cluster analysis of similar local systems (and providers?). Correlate with other measures, such as demographic characteristics of the community, population, etc. | ● | | | | ● | | | ● |
| State Authority | Policy and Planning Staff, Financial Staff – Monitor board area consumer outcomes, service utilization and cost in local systems to ensure appropriate consumer recovery, board compliance with statutory, contractual and policy requirements. | | | ● | | Aggregate analysis of outcomes, utilization and cost by scale and subscale. Report by key demographic characteristics of consumers sampled (e.g., ethnic origin, diagnostic category). Correlate with other measures, such as demographic characteristics of the community, population, rural-suburban-urban, SED/non-SED, etc. | ● | ● | | | ● | ● | | |

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| State Authority | Policy and Planning Staff, Financial Staff, Area Directors – Policy development on funding methodologies. | | | ● | | Historical trend data on financial allocations (population profile, service profile, cost and utilization). | ● | ● | | | ● | ● | ● | |
| State Authority | Policy and Planning Staff, Area Directors, Licensure and Certification Office – Monitor providers for compliance with Certification Standards. | | | ● | | Pending results of Certification Standards revision process – Likely: evidence of use of outcomes in treatment planning and care management. | | | | | | | | ● |
| State Authority | Outcomes – Develop a demographic profile of consumers admitted to public behavioral health centers. This activity is necessary in order to have a broad overview of the profile as well as understand various nuances in the distribution of Total, Scale and Sub-scale scores across board areas and their relationship to specific demographic variables. | | ● | | | <p>Frequency Distributions to examine demographic profiles of consumers/providers providing or utilizing behavioral health services in board areas statewide.</p> <p>Frequency Distribution to examine Sub-scale, Scale scores, and individual question scores by agency, board area, and state.</p> <p>Descriptive profile of consumers served, by agencies and board areas statewide.</p> <p>Scale, Sub-scale and individual question scores by agency, board area and state.</p> | ● | ● | ● | | ● | | | |

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| State Authority | <p>Outcomes – Examine the relationship between demographic profile and sub-scale, scale scores, and individual questions. This activity is essential in order to identify important factors (such as psychological, social and/or board area factors) contributing to scoring pattern observed.</p> <p>Provide benchmarking reports to all stakeholders (i.e., consumers and families, agencies and boards).</p> | | ● | | | <p>Cross-tabulations of various demographic characteristics with various sub-scales, scales and scores for individual questions by agency, board area and state.</p> <p>Establish confidence intervals, and benchmarks for scales, sub-scales and individual scores in board areas and at the state level.</p> <p>Generate tables (frequency distributions and cross-tabulations) depicting board area and state level benchmarks for consumer/provider population characteristics and scores on instruments.</p> | ● | | | | ● | | | |
| State Authority | <p>Outcomes – Conducting item analyses of questions on the Adult instruments for the purpose of developing norms, reliability and validity estimates, and confidence intervals.</p> | | ● | | | <p>Conduct reliability analyses including item analysis, exploratory factor analysis, and test for construct validity of Adult instruments.</p> <p>Determine critical responses that can be tagged as "red flags" or serious indicators of poor/excellent behavioral health functioning.</p> <p>Develop statewide confidence intervals for scales, subscales and individual questions and determine the interrelationship among them. Those found to be highly correlated with behavioral health functioning status could be used as indicators (red flags) or as predictors of recovery.</p> | ● | | | | ● | | | |

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| State Authority | <p>Outcomes – Utilize information to evaluate health status of consumers and examine treatment effectiveness relative to cost.</p> | | ● | | | <p>Use multivariate procedures to examine population characteristics, subscale scores and individual question scores to examine their relationship to 508 status.</p> <p>Explore how information generated could be used in developing and implementing a risk adjustment methodology that could be incorporated in a treatment plan and/or predict cost.</p> | ● | ● | | | ● | ● | | |
| State Authority | <p>Outcomes (Psychometrics) – Study the effects of the revised rating points on the reliability and validity of the Satisfaction with Finances Sub-scales and the Making Decisions Empowerment Scale.</p> <p>Determine whether the Quality of Life items, the Activities of Daily Living items, and the Meaningful Activities items each constitute a scale with acceptable psychometric properties.</p> | | ● | | | <p>Run a reliability analysis and a confirmatory factor analysis for the revised scales. Compare the results from the revised scales used in the pilot with the published results for the original scales.</p> <p>Run a reliability analysis, including an item analysis and Cronbach's alpha, and an exploratory factor analysis to test for the construct validity of each of the three respective sets of items.</p> | ● | | | | ● | | | |
| State Authority | <p>Outcomes (Case Mix) – Construct risk adjustment formulas to take into account case mix to more appropriately compare consumer outcomes for different boards or agencies.</p> <p>Determine the percentiles for the total scale scores and sub-scale scores for each administration.</p> <p>What are the statewide norms for the scale scores for age, gender, and race?</p> | | ● | ● | | <p>Generate percentile scores and confidence intervals for the scales and sub-scales with known psychometric properties for the state (and after risk adjustment formulas for case mix are available) for board areas and agencies.</p> <p>Examine percentile scores for the state in relationship to various demographic variables (age, gender, race, psychiatric diagnosis) for the state (and after risk adjustment formulas for case mix are available) for board areas and agencies.</p> | ● | | | | ● | | | |

