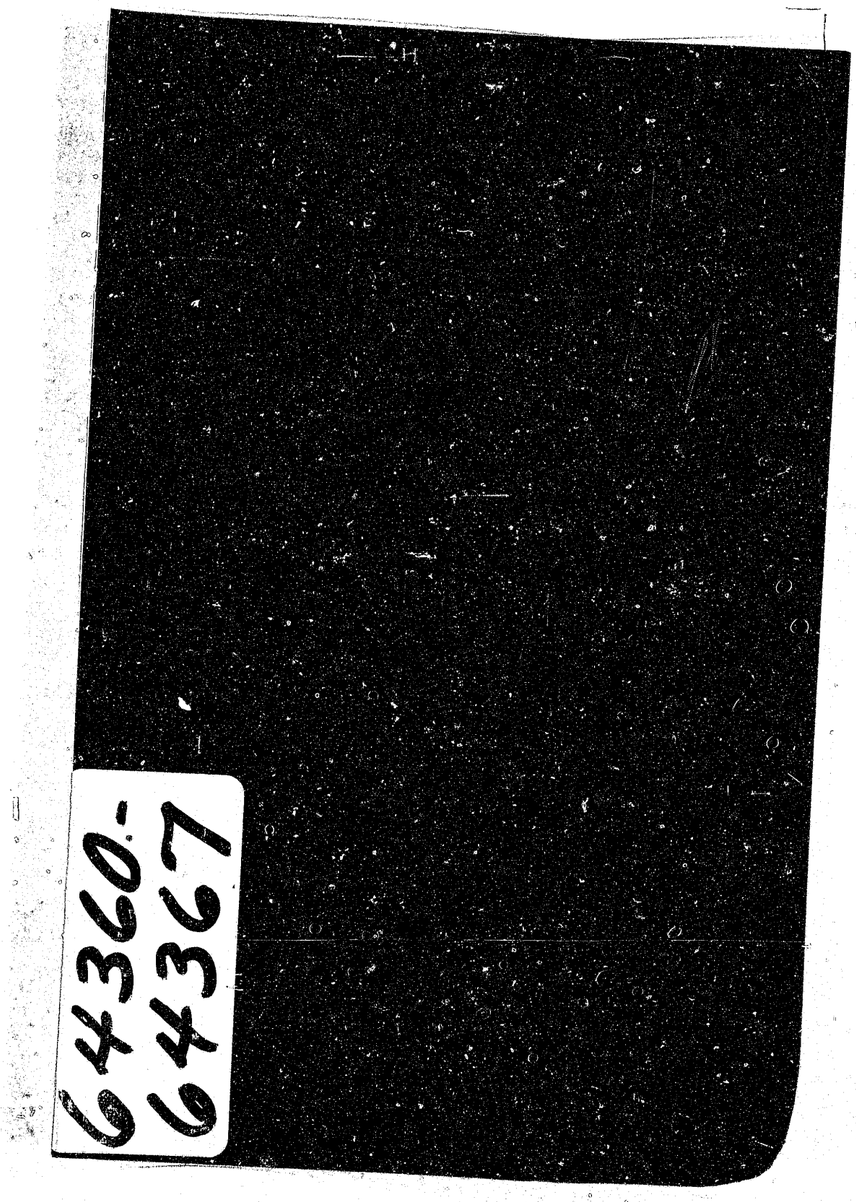

Management Information Systems in the Drug Field

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7.
Fundamental Considerations in Developing an MIS

Willie Davis and Kerry G. Treasure

When the words "system" and "management information" come to mind, they often conjure up thoughts about computers, sterile and tedious statistics, and endless paperwork and procedures--none of which have anything to do with the client or with providing services to him/her. But management information systems need not fit this undesirable mold. The purpose of this chapter is to present an overview of a Management Information System (MIS) in which:

- The client is the key ingredient.
- Relevant client data, statistics, and financial data are included.
- Paperwork and procedures are specifically designed for efficiency and compatibility with the routine procedures of service delivery.

WHY IS MANAGEMENT INFORMATION NECESSARY?

Managing any business--and a drug abuse treatment center is certainly a business of sorts--requires that the program manager make routine decisions that affect the operations of the center. In fact a prevailing definition of management holds that ". . . the art of management is simply the process of making decisions." Assuming that this is true, it is reasonable to expect that decisions be made on the basis of informed judgment:

- The manager provides the judgment
- The MIS helps him/her stay informed

At the drug abuse treatment program level, management information is necessary for four purposes: treatment, financial management, evaluation and monitoring, and planning and budgeting.

perform the decisionmaking tasks of each function) correspond to the information requirements as developed in chapter 7. From there the manager (and the project team) can fill out the rest of the form. This is basically a trial-and-error, advise-and-consent process. Throughout many items will be entered and then discarded (and possibly reentered!) as the treatment center staff struggle to define their management processes. But the struggle will pay off. There is no substitute for careful system planning and this set of specifications provides a good foundation for the entire project.

Solicit and Evaluate Vendor Bids

"Let the buyer beware" is not a particularly comforting credo for drug abuse treatment centers in the new world of automated MIS but it is a necessary one. Because treatment centers can, we believe, profit from a dose of old-fashioned competition in evaluating and selecting among the data-processing alternatives, a well-structured specific Request for Proposal (RFP) which includes the systems objectives and specification worksheets can assist the treatment center to communicate its systems needs to prospective firms. It can also provide those firms with a helpful framework within which to describe their systems.

In summary, this chapter has provided a look into the world of data processing from the point of view of the drug treatment program manager. We hope that he or she will now be able to analyze additional information on his/her own. Because the field is so technical, the potential for costly mistakes is great. Hence we have stressed planning and obtaining objective expert help. To us the advantages of automation are so compelling that we feel planned risk is clearly justified.

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Awad, E.M. Automatic Data Processing: Principles and Procedures. 2nd ed. Englewood Cliffs, N.J.: Prentice-Hall, 1970.

Figure 1 portrays the management cycle and purposes for which information is required.

Although these purposes are different, they may only require different ways of looking at the same information. Essentially all the information required as a basis for decisionmaking centers on seven basic management questions:

- Who?
- Provided what?
- To whom?
- When?
- Where?
- What happened?
- How much did it earn/cost?

If the data needs are similar for most management and clinical users, it follows that the information can be collected once in a format that will satisfy all intended users. An efficient system will collect as little information as possible and use it for as many management purposes as possible.

WHAT IS A MODEL MANAGEMENT INFORMATION SYSTEM?

A model management information system is a set of data, input forms, processing procedures, and reports that support decision-making in all phases of the management cycle. This chapter will illustrate the applicability of a model MIS to a drug treatment program by using a modular approach.

Planning Module

A planning module aims at the following objectives:

- Identify appropriate goals and formulate a program plan.
- Use the program plan and historical data from the other MIS modules to develop a quarterly or monthly revenue/expense budget.
- Use this budget to meet external reporting requirements (e.g., to NIDA).

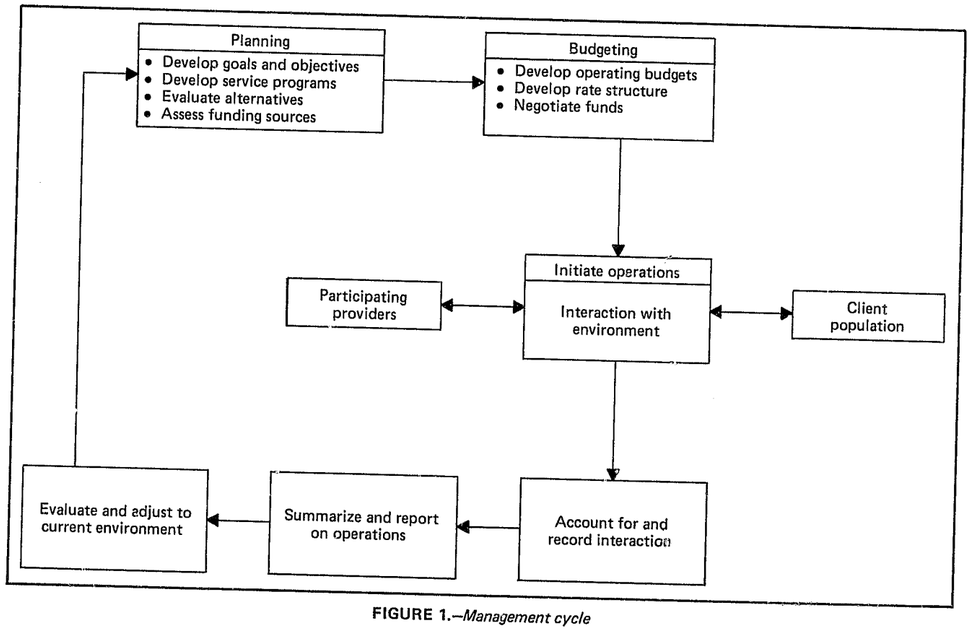

FIGURE 1.—*Management cycle*

- Use the budget throughout the year to monitor the financial status of the treatment center.
- Identify unit costs for each type of service provided by the program.

Although the emphasis is usually on delayed planning once a year, a well-designed planning module will function as an effective management tool throughout the year.

The Client Treatment Module

The client treatment module is seen as comprised primarily of a set of input forms in the client record. These forms relate to the four phases of the client treatment cycle:

- Admission
- Treatment planning
- Service delivery and progress evaluation
- Discharge

Information collected throughout the client treatment cycle can be used for such purposes as staffing, billing, reporting to NIDA, planning and budgeting, and evaluation.

The Financial Management and Accounting Module

As public funds available for drug abuse treatment become more limited, programs will be increasingly required to demonstrate tight internal controls and efficiency with money. The four functions of the financial management and accounting module can be carried out in a way that facilitates cost accounting or cost allocation and allows management to identify costs and revenues according to the type of activity with which they are associated:

- Accounts receivable management
- Billing
- Payroll
- Voucher processing (i.e., paying bills)

The Report and Evaluation Module

The evaluation/monitoring module does not necessarily involve the collection of additional data but rather tabulates and analyzes data collected by the other three modules. Three types of analysis can be performed by this module:

- Evaluation of individual client progress
- Financial anaylsis, e.g., comparison of actual to planned expenditures, and ratio analysis
- Program analysis of two types:

    1. Assessment of success in meeting program goals and objectives.
    2. Review of routine program indicators such as staff-to-client ratio, turnover of client population, and percentage of successful discharges.

The evaluation/monitoring module demonstrates how information collected by the other modules can be summarized, tabulated, and displayed to be of greatest assistance in the decisionmaking processes.

Integration of the Four Modules: An Illustration

We now show how two of the most common occurrences in the treatment center generate data that are employed by each module within the MIS.

Client Admission to the Program

A client is admitted for treatment at a methadone program:

- The client management module: The admission form is completed following a decision on the appropriateness of admitting the client. This same information aggregated over many patients and a significant period of time is used to plan staffing patterns and levels within the client management function.
- The financial management and accounting module: The information gathered on admission is also used by the financial management and accounting module to establish an accounts receivable ledger card.
- The report and evaluation module: The information gathered on the admission form is used to complete the CODAP report for submission to NIDA; it then becomes part of the data bank for future evaluation of:

    1. Changes in the client's status from time of admission.
    2. The characteristics of the client population. Information about this particular client will be combined with similar information about all clients to produce aggregate reports.

- The planning and budgeting module: The fact that an admission was made will be compared to the planned timetable for admissions to see if the program is on target for the year. And the information in the data bank will be used as the basis for planning budget levels.

Client Receives Treatment

The most important activity in the treatment center is the providing of services. This is also the activity that has the most significant impact on the MIS. The discussion below illustrates how the collection of information at a single point in the process interfaces with the entire MIS.

- The client treatment module: When a client receives treatment, a record is made of the encounter; it describes who did what to whom, when, and where. On the basis of this information the staff can provide a record of client progress and response to treatment, decide on the course of future treatment, and schedule working hours and assignments.
- The financial management and accounting module: This same information serves as a notice to the financial management and accounting module that:

    1. A bill should be prepared for providing "x" service to a particular client.
    2. A cost has been incurred for providing "x" service to a particular client.

- The report and evaluation module: The information in the progress notes allows clinic supervisors to make an objective assessment of the client's progress and the clinic's pattern of service delivery. When aggregated, this information yields evaluation reports. The information can be used to analyze productivity, utilization, outcome of the treatment process, and other aspects of the program.
- The planning and budgeting module: Aggregate data from the encounters will help program administrators determine if services are being provided in the quantities planned. This information will become the data base on which future program plans and budgets are based.

Information collected in the process of serving clients is simply "borrowed" to provide the input to the other MIS modules.

HOW A MANAGEMENT INFORMATION SYSTEM IS DESIGNED

An MIS is usually developed in four steps:

- Identify management information needs.
- Develop a consistent and compatible set of definitions for the collection of data.
- Design forms for data input and display.
- Determine the most efficient flow of information.

The purpose of the MIS is to help manage a program. It follows, then, that the first step in developing the MIS is to ask, "What information will help me operate my program more efficiently and most effectively?" This question is based on the most elementary principle of information science:

> Do not collect information unless you can anticipate a use for it.

In the case of a small or understaffed drug abuse treatment center, a corollary is:

> No matter how "useful" the data may potentially be, do not collect it unless you will have the capacity to process it on a timely and routine basis.

Much of the data required to operate the average drug abuse treatment program are specifiable and consequently can be incorporated into a model MIS. Included is information about client characteristics, staff activities, and cost/revenues. In addition each program has unique information needs to which the MIS must respond. Information needs are determined by:

- The size and complexity of the treatment center: In a very large program, the need for formal communications (e.g., between counselor and supervisor) will be greater than in a small program where word of mouth will usually take care of most routine communciation.
- The scope and nature of quality review and client progress assessment: If cases are routinely monitored by other than the principal therapist, client records must contain enough information to allow for independent and objective assessment.
- Sophistication of the planning system: If planning and budgeting are carried out in the fashion alluded to earlier in this chapter, a historical data base will be needed that describes patterns of utilization, size of the client load, staff productivity, etc.

- The type of program evaluation and monitoring: Programs vary considerably on the amount and type of evaluation and monitoring they perform. There are at least four possibilities that should be considered in the designing of the MIS:
  1. Evaluation of individual clients.
  2. Routine program monitoring through program indicators such as percentage of positive urines, staff-to-caseload ratios, and number of successful discharges.
  3. Progress toward treatment goals.
  4. Financial analysis such as ratio and variance analysis.

Identifying information requirements is the most difficult part of designing an MIS. In attempting to develop a list of information needs, several fundamental questions must be answered:

- What are the major activities or decision areas for which my staff and I are responsible?
- What information is necessary to conduct these activities or make decisions?
- How will this information help me conduct these activities or make these decisions?

The elements listed should be carefully selected to insure consistency and compatibility.

- Consistency: Many of the data elements on the list will be used to serve more than one purpose. For example, "number and type of services provided" will be used for planning, determining unit costs, preparing bills, conducting productivity studies, and assessing the quality of care. The program manager must be sure to collect the information in such a format that it will meet each of these needs.
- Compatibility: Often data elements can be combined with each other to produce additional data and summary reports. For instance the "number and type of services provided by personnel type" may be combined with the "salary levels by personnel type" to determine the direct labor cost per type of service. There must be uniform or compatible definitions for "personnel type" if these two types of information are to be merged.

On a day-to-day basis, each of the four modules operates more or less independently. Ultimately, however, they all feed into the same decisionmaking process and so comprise an integrated MIS.

The diverse information needs must now be organized into an information classification structure, a compatible and consistent set of data definitions.

The following sections describe how the Information Classification Structure is developed and how it is used by each module of the MIS. Three tasks must be completed to develop an ICS:

- Identify the most significant categories of information requirements.
- Define a list of mutually exclusive and exhaustive elements within each category.
- Assign a number or code to some data elements.

Most information required for decisionmaking is in response to seven basic management questions:

- Who?
- Performed what?
- For whom?
- Where?
- When?
- What happened?
- How much did it cost/earn?

Virtually every type of information necessary to make routine management decisions answers one or more of these questions. Therefore data categories can be identified. The ICS categories that respond to the questions in the model MIS are shown in figure 2. The figure also shows the phase or module for which this category of information is especially important.

Because the four modules of the MIS act independently, yet are concerned with many of the same data or information types, it is necessary that each module speak the same language. The Information Classification System provides a common set of choices for each of the seven basic management questions (or categories of data). Thus the ICS assures that the data collected by each module is consistent and compatible with the data collected by the other modules. In selecting the data elements for each of the categories, it is important that the elements be mutually exclusive and exhaustive. The following sections describe the considerations that should be made in selecting the data elements for each ICS category.

Resource--Staff

This category simply lists all of the staff positions currently existing (or planned) at the treatment program. This list should be as short as possible but make relevant distinctions between

Management question	ICS category	Management cycle phase / MIS module: Plan and budget	Client management	Financial management	Evaluation
Who?	Resource--staff	X	X	X	X
Provided what?	Service	X	X	X (billing)	X
	Resource--nonstaff	X		X	
For whom?	Client identifier		X	X (billing)	
	Demographic				
Where?	Cost center (location)	X		X	X
When?	Date (shift)	X		X	X
What happened?	N/A				
How much did it cost/earn?	Fund	X		X	X

FIGURE 2.—*Basic management questions*

staff types. For example if a variety of people perform counseling, the ICS could simply identify them all as counselors. Or it could distinguish among them according to:

- Their level of responsibility: senior counselor, junior counselor.
- Their level of education: degreed counselor, paracounselor.
- Their area of expertise: family counselor, vocational counselor.

The amount of detail selected is wholly dependent upon program needs for detailed management information.

Resources--Other

This data category lists the types of supplies and other goods, materials, and services routinely consumed by program operations. The list of data elements for this category can be prepared by reviewing the budget and the accounting records (checkbooks) for past time periods and simply noting the expense items. The list should be reviewed critically to determine whether tabs should be kept on each item individually or whether some items can be grouped (e.g., pens, paper, and staples grouped as office supplies).

Service

It is important for (1) billing, (2) recording staff activity, and (3) evaluation that everyone in the treatment program share a common name for each type of service offered. The elements in this category should reflect the service name in current use in the program or the names used by the major third-party payers.

Client Identification

A single number or name must be used consistently for each client to assure that his or her various records are completed properly. In addition to client identifiers, certain information should be collected about each client such as age, sex, legal history, employment status, and so on. Because this is the most voluminous category and also the one from which many reports are prepared, special care should be taken in listing its data elements. Particular attention should be paid to the standard external reports (e.g., CODAP) that must be submitted.

Cost Center

Frequently, managers need to plan, budget, manage, and monitor discrete sections of their programs on an individual basis. These

discrete sections may correspond to locations, modalities, floors, environments, or some other variable, and are called "cost centers." These centers should embrace a portion of the program that incurs expenses more or less independently of the rest of the program. Usually these centers are under the direction of a single supervisor or manager.

Time/Date

The time and date are self-explanatory. Particular attention should be paid to this data category when:

- Third-party billings are prepared. All records must bear the same data and thus provide an audit trail to substantiate claims.
- The program operates on shifts, and management requires accounting or client data broken down on this basis.

Fund

Often funding organizations require that accounting and utilization records describe how the money they provided was spent. The data categories in the ICS should reflect the various funding sources for your program.

General Ledger

The general ledger (which corresponds to the Chart of Accounts) is the basic control mechanism for recording financial transactions and probably will not vary significantly from treatment center to treatment center.

In sum, the data elements in these categories define almost all of the activities that will take place in a treatment program. They are used by all four modules to simplify the data input process and to assure that all data collected by the MIS are consistently defined and compatible from module to module.

Often, it is useful to assign a short code or number to the most frequently used data elements for two reasons:

- Codes save time. If two digit numbers are assigned to each cost center, it is easier and faster to write "01" than to write "Outpatient Drug Free Center, Main Street Location".
- Codes facilitate the combination of data elements from the various categories. Figure 3 shows that codes can be combined as long as there is an agreed-upon order for each category. For example the General Ledger Code is always followed by the Fund Code, the Cost Center Code, and the Resource Code, in that order. The second half of the

710	01	01	02
General ledger 700 Expenses 710 Salary expense • • • •	Fund 01 NIDA grant 02 Medicaid • • • •	Cost center 01 Outpatient 02 Residential • • • •	Resource 01 Physician 02 Counselor • • • •

Example: Salaries for the counselor are paid from the NIDA grant; the counselor worked for the outpatient program. The codes for this transaction would be:

710-01-01-02

These code numbers correspond to the data input forms used in the other modules of the MIS. When the counselor completed his/her staff activity log, he/she noted the correct position (resource) and cost center.

FIGURE 3.—*Computer code combination*

figure illustrates how this arrangement facilitates the recording of accounting information.

Not all items in the ICS will be coded of course; only when coding makes implementation and operation of the MIS easier and more efficient should it be employed.

Once data elements have been identified and defined, the appropriate format for capture and display of each data element must be determined. Forms design is challenging and often considered the most complicated part of developing a system. Forms simply provide a list of questions that elicit the required information in an organized (consistent and compatible) fashion. Hence what information will be gathered by which form must be thought out carefully in advance. Here are some guidelines:

- Keep the number of forms to a minimum. Do not collect information on two forms if one will suffice. Carbon paper or self-duplicating sheets should be used to obviate repeated recording of the same information to be used by different modules.

- Preprint most of the questions (and possibly the limited set of responses from the ICS) on the forms. This will:

  1. Assure that the important information is not omitted.

  2. Reduce the amount of writing that the staff person will have to do.

  3. Provide information in a standard format for easy summary and tabulation.

- Develop the summary report formats at the same time the data-collection formats are developed:

  1. Some decisions do not require information about individual clients. Because the information aiding such decisions can be accumulated, develop the summary tables to parallel the data-collection forms.

  2. Also if you find that some data are not used for any summary purpose, this may be a clue that the data are not particularly valuable. Reevaluate these data elements to be sure that they do indeed have a use.

- Provide some mechanism for controlling the distribution and collection of the forms:

  1. You may want to preprint sequential numbers on some forms (similar to the preprinted numbers in your checkbook) so as to call attention to missing forms and aid in tracking them down.

2. Keeping some data in bound jounals and/or logs will keep pages from becoming lost.

3. Cross-references from one document to another or from one file to another will help you retrace steps if information must be verified or updated.

- Plan ahead if you anticipate converting to an automated system. Design the forms even for a completely manual system so that they can be keypunched or machine read in the future. If you do this, you will not have to retrain the service delivery staff when you make the change to automation. Indeed, it might be noted that a large proportion of the gain in automating a data system is in the clarity of thinking required, e.g., careful coding, forms design, attention to reporting requirements, etc., and has nothing to do with electronics.

- Pretest the form before implementing it throughout your treatment center. No matter how logical and complete the form may seem to you, the users of the form will be able to find something that can be improved. Remember, it is the staff that will be using it. If the forms are pretested, you will avoid confusion and possibly a costly printing bill.

The forms when developed and pretested form the backbone of the management information system. Decisions must be made on who will handle each form and when each will be used. These decisions will result in a "data flow" in which the following considerations are relevant:

- The point at which the information is required. Obviously data must be collected before it is required for decisionmaking.

- The time during which it is easiest to collect the information. For example clients may resist providing sensitive information during their first visit to the center. Unless the data are absolutely needed then, delay the data collection until the client is more comfortable.

- The time and skill required to collect the data. Generally most data, particularly of the demographic kind, can be adequately collected by clerical personnel.

When the data flow has been determined, it should be depicted on a simple flow chart. Figure 4 presents simple flow chart symbols and an example of their use.

This introduction has spelled out the four major steps in designing a management information system:

- Identifying information needs.

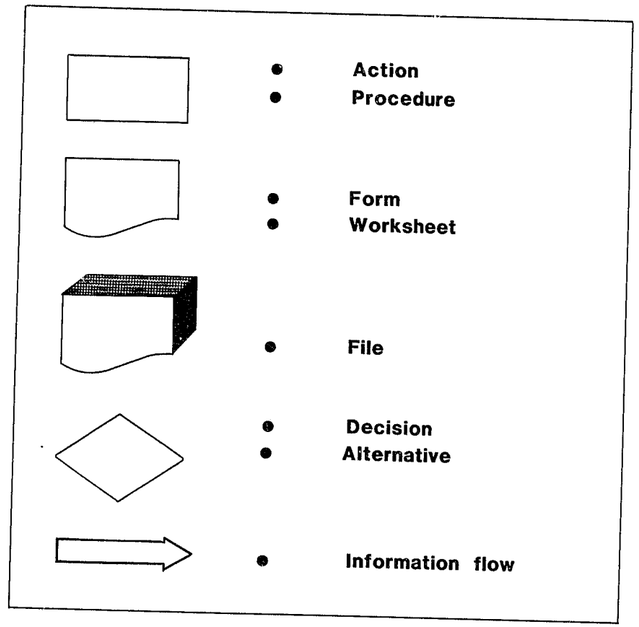

FIGURE 4.—*Example of the use of simple flow-chart symbols*

- Organizing information needs into a consistent and compatible framework called the Information Classification System (ICS).
- Designing the forms for data collection, tabulation, and display.
- Determining the most efficient data flow.

THE DEVELOPMENT OF A MANAGEMENT INFORMATION SYSTEM IN A DRUG ABUSE TREATMENT PROGRAM

Planning and Budgeting Module

Figure 5 emphasizes that the first (and often shortchanged) step in the planning process is the development of a concise and specific statement of the goals and objectives of the treatment center. Objectives should be stated in quantifiable and measurable terms:

- Quantifiable: Stated in terms of numbers or percentages. For example, an objective might be to assure that 25 percent of the clients obtain employment and hold a job for at least 6 months. In this case, the 25 percent and the 6 months are the "quantified" terms.
- Measurable: Stated in terms about which information can be collected and analyzed. For example, the objective might be to increase client "happiness" by 25 percent. This is not stated in measurable terms because happiness as such cannot be assigned a number on any scale of measurement.

The activities should be stated as clearly and specifically as possible. There are three planning assumptions implicit in the statement of activities:

- The most desirable or effective services. Selection of the service mix is dependent upon the philosophy of the treatment program and its staff, Federal and State regulations, research findings, and prior experience.
- The size of the caseload and the portion of the caseload that will be provided each type of service. This is based on a perception of the number of "potential" clients in the community (i.e., the demand for services) as well as the fiscal and physical constraints on the program.
- The frequency of service or the expected typical treatment plan. Although each client's treatment is planned on an individual basis, it is necessary for planning purposes to determine the average frequency of use for each service type.

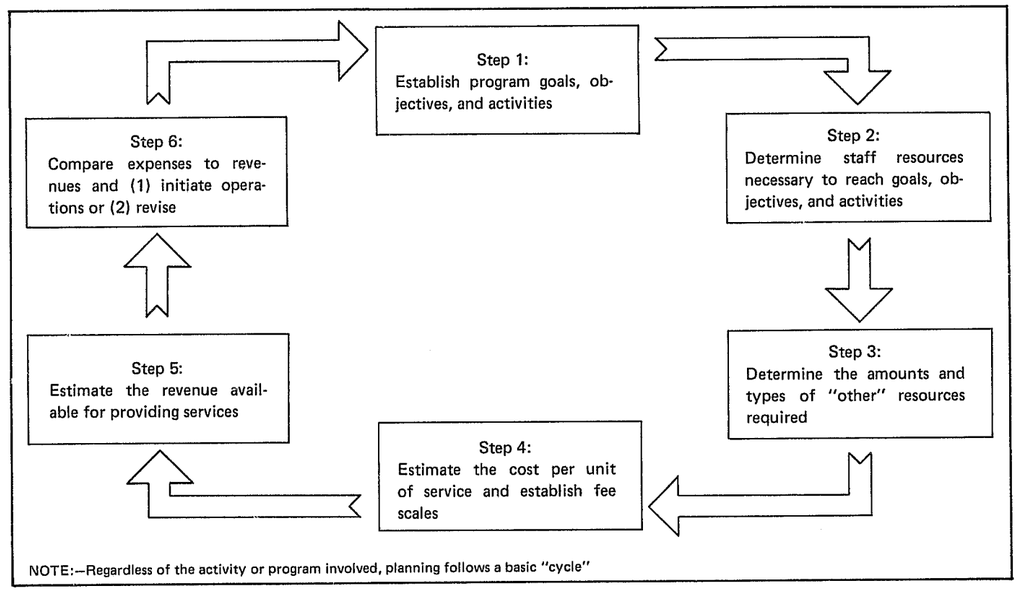

FIGURE 5.—*Planning cycle*

Even the most modest treatment program has administrative needs in order to make service delivery possible. Many programs are in addition concerned with research, public relations, and staff development, to name a few. Because of the wide variety of enterprises that may take place in a drug treatment center, it is difficult to develop a standard terminology that will fit all of them.

In developing support and ancillary objectives, the following questions should be asked:

- What tasks are to be accomplished?
- Who is responsible for accomplishing each task?
- When is the task to be accomplished?
- Where is the task to be accomplished?

The answers provide an adequate basis upon which to estimate resource requirements. The resource requirements, in turn, will be used to prepare the budget. Once the objectives and activities have been defined, the program plan can be completed by estimating the resources required.

In a labor-intensive industry such as drug abuse treatment, personnel resources are by far the most significant. Since staff requirements comprise so great a proportion of all resources for program operation, they must be planned carefully.

Staff resources fall into two categories: service delivery staff and support and ancillary staff (to be defined later). In addition, nonstaff resources must be considered (e.g., rent, supplies, utilities). Because drug abuse treatment is a relatively new field--and an innovative one at that--there are few standards on which to base ratios for treatment programs. However, unless there is a drastic change in the goals and objectives of the organization or some evidence that the planning assumptions developed through the process to be described are erroneous, many of the ratios (e.g., number of counselors per 100 clients) can be used in subsequent planning periods.

Most service delivery staff needs are "variable," that is, the staff requirements are directly proportionate to the number and type of activities to be performed. A framework for determining the relationships between size of caseload and types of services and the number and qualifications of staff required must be established first.

The service utilization should be developed for each type of service or activity provided. The frequency of service provision and number of clients obtaining each type of service are taken into consideration. This estimate is made on the basis of previous experience tempered with new trends or research findings. It is critical that the estimate reflect attainable levels of performance

because all subsequent steps in the planning and budgeting process are based on this figure; an error in this number will be echoed throughout the planning and budgeting assumptions. Once we know how many minutes of service delivery each staff type will provide to carry out each activity and also the amount of service delivery time that can be expected from each full-time employee, the total number of employees needed to accomplish the activity can be determined by dividing the former by the latter. This figure represents the total full-time equivalents necessary for one staff category.

The number of full-time equivalents required will rarely be an even number. Most likely, the number of full-time equivalents will be a fraction such as 1.2 RNs or 3.8 counselors. Comparing summary sheets for each cost center may indicate areas in which staff members can be shared between cost centers, thereby reducing the requirements for part-time employees. For example, if 1.8 RNs are needed by one cost center and 3.2 RNs by another, the program manager can consider hiring 5 RNs, one to be shared by two cost centers subject, of course, to scheduling and logistical constraints.

Because of the diversity and unpredictability of many administrative and support activities, it is difficult to judge staffing requirements. Nonetheless it is important to establish some means of documenting staffing decisions related to support and ancillary objectives and activities. Documentation will enable programs to review planning assumptions to determine if the original expectations will, in fact, meet the objectives of the program.

When the summary has been prepared for each cost center, it may prove useful to accumulate all staff requirements into a single summary for the entire program so that the requirements can be compared to the existing personnel roster and hire or terminate decisions can be made. Recognizing that it may not always be possible to hire the precise number and type of staff "required" or to lay off "overage" staff, the summary worksheet may have a right-hand column to indicate the final staffing decision.

Although staff resources comprise the majority of the budget in most drug abuse treatment programs, there are other goods and services essential to execution of the activities and necessary to reach program objectives. These resources fall into two categories.

- Type I: Resources that are related to the overall operation of the program. Things such as rent, utilities, and communications are not planned for <u>each</u> activity but rather reflect the needs of <u>all</u> program objectives and planned activities.
- Type II: Resources that are directly related to a specific objective or activity. For example, urine bottles are needed only for conducting urinalysis.

Because there are so many types of resources that may be required, it is difficult to establish an exact formula for estimating all of them. It is possible however to analyze both types according to how they are used:

- Variable resources: These are directly proportionate to some other factor in the treatment program such as number of clients, number of staff, or number of billings. For example:

  1. Type I: The amount of office supplies required is determined more or less by the size of the staff. The size of the staff is determined not by a single objective or activity but by all objectives and activities combined.

  2. Type II: The amount of methadone required is directly proportionate to the number of clients to be treated with methadone. The methadone requirements are directly related to the single activity "providing methadone treatment."

- Fixed resources: These are needed regardless of the number of clients, the number of billings, or the size of any other factor related to operations. Fixed resources are required simply to open the door of the treatment program. Although they may fluctuate over long periods of time, they are not responsive to day-to-day changes in program operations. For example, when fluctuations occur in the size of the staff or the caseload, the building size remains constant (unless, of course, you move to another building).

- Incremental resources: Incremental or semivariable resources are those that are adequate to sustain a given level of operation but that become insufficient if that level changes even slightly. The best example is equipment. If the client load becomes so great that one refrigerator cannot stock the food, the program must buy a whole refrigerator even if the extra food only takes up half of it. You cannot buy refrigerators in "increments" smaller than one.

The second aspect of the planning and budget module is the development of a program budget; more specifically, an expense budget. A budget is simply a statement of:

- The costs (expenses) of program resources necessary to meet program objectives and activities.

- The revenue to be earned if program activities are carried out and objectives are reached.

The Worksheet for Preparing the Operating Budget: Expenses shown on the following page (figure 6), is the framework for accumulating all the information and assumptions necessary. The following steps will complete the worksheet:

WORKSHEET FOR PREPARING THE OPERATING BUDGET: EXPENSES														WORKSHEET #
COST CENTER														PLANNING PERIOD
RESOURCE			ESTIMATION BASIS											
			BASE SALARY	WEEK	FULL TIME				PLANNING PERIOD					
GEN.L.	RES.#	DESCRIPTION	PER PERIOD	NO.	1	2	3	4	1	2	3	4	TOTAL	
TOTAL SALARIES														
FRINGE BENEFITS = ____ % OF SALARIES														
OTHER RESOURCES			ESTIMATION BASIS/WORKSHEET #						1	2	3	4	TOTAL	
TOTAL														

FIGURE 6.— *Worksheet for preparing the operating budget*

- List each staff resource type and record the appropriate Information Classification System code. These codes are the same as those used in the accounting module and using them will help retrieve accounting data for use in projecting expenditures.
- Enter the base salary for the upcoming planning period.
- Place the number of full-time equivalents per period developed earlier onto the Worksheet for Preparing the Operating Budget: Expenses. Be sure to record the Worksheet number to create a source reference for these numbers.
- To calculate the salary cost per period, multiply the base salary by the number of full-time equivalents and enter the dollar amount into the corresponding period.
- Calculate the fringe benefits and enter in the appropriate row.
- List each "other" resource developed earlier. Make note of the ICS codes at this time and record the worksheet number on which the original assumptions are made.
- For each resource, estimate the anticipated cost.

This completes the budget by cost center and planning period. Two tasks remain to complete the expense budget for the treatment program:

- Sum up the expenses by cost center
- Total these amounts to arrive at the total expense budget for the entire treatment program

Can you imagine General Motors selling a car and not knowing how much the parts and labor cost or the difference in cost between a Vega and a Monte Carlo? It is becoming equally important that the drug abuse treatment center know the cost of providing each type of service. The objectives of cost finding are:

- To provide cost information as a basis for establishing billing rates or for evaluating existing rates.
- To provide information for reports to boards of directors, governmental agencies, and other groups.
- To provide a basis for negotiating reimbursement rates with third-party payers.
- To provide data for decisionmaking and program evaluation.

A unit cost is the amount of money it takes to provide a service once. Three factors contribute to it:

- Direct labor
- Direct supplies
- Overhead

Figure 7 shows the combination of these factors. The unit cost can be determined from the information already accumulated in the program plan and the expense budget and there are numerous ways to compute it. Basically three tasks are required--one task corresponding to each type of cost shown in figure 7.

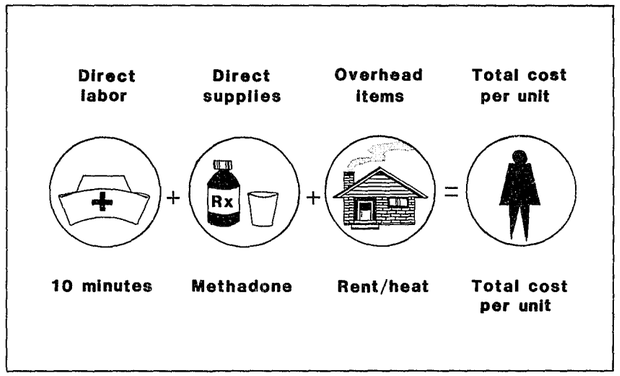

FIGURE 7.—*Factors contributing to unit cost*

Direct labor costs are defined as salary and fringe-benefit costs that are incurred in order to provide client treatment and thus to meet the service delivery objectives. These costs typically comprise the largest portion of the budget and, consequently, of the unit cost.

One must first determine the labor value of each service unit. This requires the assumptions that:

- If 20 percent of staff time is spent on service y,
- Then 20 percent of the salary expense is attributable to service y.

In addition,

- If 20 percent of the salary expense is attributable to service y, and
- If 300 units of service y are provided,
- Then one three-hundredths of the 20 percent of the salary expense is attributable to each unit of service y.

Using this assumption as a guide, the percentage of time it takes each staff type to perform each type of service can be calculated, thus enabling the applicable labor cost to be derived. By dividing each direct labor cost by the projected utilization, the direct labor cost per unit of service is produced.

- Food and kitchen equipment; direct costs in providing meal service.
- Methadone and medicine cabinets; direct costs in dispensing methadone.
- Psychological testing supplies; direct costs in conducting the intake interview.

The cost of these resources can be reduced to a unit cost by dividing the total resource cost by the anticipated utilization.

Overhead costs include at a minimum administrative activities, possibly research activities, followup, staff development, public relations, and other such endeavors. Typically no fees are charged to participants in these support and ancillary activities and so the cost of conducting these activities must be charged to the services--the "revenue generating" activities of the center.

Once overhead costs are incurred to support the provision of service, it follows that the service could not be provided without them. Consequently, each service must share responsibility for the overhead costs; that is, each service must absorb some proportion of these costs. However, each type of service does not bear an equal relationship to the total overhead costs: some services require more supervision, more supplies, more space, more typing, and so on. The task of the program manager is to select a basis by which each service can be most logically charged or "allocated" its fair share of the overhead. Selection of the allocation basis rests on the following assumption:

- If y services comprises x percent of some variable,
- Then x percent of the overhead should be charged to y service.

Overhead costs are distributed to each service category utilizing a number of allocation techniques or bases. The objective in each technique is to determine the logical relationship between each

service and the overhead costs. Once this relationship is determined, allocating overhead becomes a simple task of associating percentages of the total overhead cost to each service. The unit overhead cost is then calculated by dividing the projected utilization into the overhead cost of each service. The total unit cost is calculated by adding each of the three unit costs above together.

As with expenses, the revenue budget is based on assumptions about:

- The number of clients the program expects to serve
- The type and frequency of services to be delivered
- The rate of payment available from various sources for providing x service to x clients; the rate of payment must be estimated separately for each of the major payment sources:
  1. NIDA grants and contracts
  2. State and local funds
  3. Third parties and client fees
  4. Donations
  5. Other sources of revenue

The first two assumptions derive directly from the program objectives. The third is based upon program expenses and projections. The General Ledger Code and the Fund Code must be used for each source of income thereby linking the revenue generation process to the management account structure.

The Federal share of the total operating costs of a drug abuse treatment program will depend on:

- The type of grant or contract
- The number of years of previous funding
- Federal funding policies such as the maintenance of effort strategy and the allowable cost per slot
- The overall size of the Federal appropriation
- The number of approved client slots
- Program ability to meet local match requirements

Estimating revenue from State and local governments is done in much the same fashion as estimating Federal support. Programs must have a current and accurate understanding of the amount of money to be distributed by these governments and the mechanisms for making a request. The assumptions made and/or the award

documents or letters of agreement should be taken into consideration.

Each third-party payer must be identified by the program and a specific amount of revenue associated with it. This is best done by identifying the basis upon which reimbursements will be made and calculating how the criteria will be addressed through the program's provision of specific eligible services. The total projected revenue from each source is then added up.

Client Management Module

The Client Management Module includes all functions within a drug abuse treatment center which either directly or indirectly support the client's treatment at the center. Since these functions include a wide variety of activities, this discussion will not cover them all but, rather, highlight the conceptual framework within which the activities occur. NIDA, recognizing that detail cannot be entirely overlooked, has initiated several efforts geared toward presenting specific activities within the client management process. These efforts include suggested client recordkeeping systems, central intake monographs, confidentiality procedures, and a number of other client management products. A specific listing of such advisory documents can be obtained by contacting the National Clearinghouse for Drug Abuse Information or the appropriate program representative.

Examples of activities which are commonly associated with client management consist of scheduling counseling sessions, dispensing methadone, information gathering, completing and processing forms, and collecting urine specimens. In addition to these are hundreds of other tasks which together form the client management process. The objectives of preparing a model for the client management module of a program's operation are first, to organize these many activities into their most efficient and effective sequential relationships; second, to insure that the information needed by staff and management is produced by the process and is compatible with other program operations; and third, to fulfill minimal standards established by Federal, State, and/or local authorities. Consequently the client management module presented here has been structured to correspond with the broad functions existing within all drug treatment programs. In addition, processes shown are intended to reflect information made available within other modules and felt to be essential functions of client management.

There are a number of ways in which the client management functions can be expressed in a management information system. The functions which probably best describe the key client management operations within all types of drug treatment programs include the client's:

- Entry into the program
- Treatment plan development
- Treatment documentation
- Disposition from the program
- Followup activites

Each of these functions is a major topic for discussion in itself.

Clients enter drug abuse treatment programs from several different sources either voluntarily, under court order, or through referrals from other agencies. Despite the client's source of entry, all share a common destiny: admission processing. This refers to preadmission activities, admission activities, and activities performed by a Central Intake Unit (CIU). These central intake unit activities, however, will be discussed from the perspective of the drug abuse treatment program's interface with the CIU. In other words, specific functions which take place in the CIU will be presented only if they will occur within the treatment center. A description of CIU operations can be obtained from the National Clearinghouse for Drug Abuse Information.

In some instances programs will locate clients requiring treatment through the use of outreach activities. In such cases it is essential to incorporate the following procedures:

- Link the outreach activities to the program goals, objectives, and admission criteria.
- Define the target population sought.
- Outline a specific plan to systematically penetrate the maximum stated proportion of the defined target population for specific time periods.
- Monitor results versus plans frequently.

With these concepts in mind one should develop an outreach worksheet which will enable the identification of significant milestones achieved, problems encountered, adjustments needed, and revisions made.

Entry into a drug abuse treatment program is probably a totally new experience for the client; that is, being queried on every aspect of his/her life and lifestyle while at the same time being thrust into a structured setting. For this reason the entry phase of the client management process must be streamlined to lessen redundant activities which would add to the client's anxieties. An example of such a counterproductive and inefficient process is obtaining demographic information both when completing the CODAP form(s) and when gathering routine intake data on program-developed instruments.

Whether clients enter the program from a CIU or directly, several admission processing operations are required:

- The conduct of an initial interview to gather needed information on the client's:

  1. Personal history (including legal, psychosocial, employment/vocational, and educational histories).

  2. Medical history.

  3. Drug-use history.

- The completion of the required CODAP forms.

- The completion of other needed documents and/or applications for food stamps, Medicaid, private insurance, and public assistance programs.

The above operations are required of all NIDA-funded drug abuse treatment programs either as a condition of the Federal funding criteria or in response to the program's need to seek every possible source of additional funding.

The provision of a satisfactory treatment regimen for the new client rests in the ability of a drug abuse treatment program to:

- Correctly pinpoint a client's problem(s).

- Determine a course of action for solving the problem(s).

- Provide treatment in accordance with the planned course of action.

The concept of treatment planning is thus not complex. Yet in everyday practice it is difficult to follow because of the many distractions involved in providing treatment to clients. Such distractions must be recognized and placed in their proper perspective if an adequate scope of treatment is to be provided.

In developing the formal written treatment plan, program managers must realize the important function the document serves. The success or failure of each client's treatment rests upon its adequacy. It is indeed the focal point of the documentation of client treatment. It has three main components:

- Statement of problem(s)

- Statement of goal(s)

- Statement of proposed therapy

The Treatment Plan Form designed for the Client Record System also notes the date problems are identified, target dates for accomplishing goals, and dates problems are solved. A treatment

plan may be initiated any time a problem is identified. The goal and therapy for that problem are entered as they are formulated.

The treatment plan may be temporary, and initiated after the initial interview and medical examination on the first day. On the other hand, it may be a complete treatment plan formulated at the conclusion of the appropriate in-depth interviews. It may even evolve into a different "complete" treatment plan as new problems are revealed.

The treatment plan is updated from the ongoing progress notes as new problems emerge and old problems are clarified and resolved. It therefore becomes the single most important section in the Client Record, providing current documentary evidence that:

- Problems are being identified

- Goals are being established

- Treatment is being formulated

- Progress is being achieved

In sum, the treatment plan is a constant reference point--a security against losing track of problems and their planned resolution in an ever-changing therapeutic regimen.

The sole purpose for which drug abuse treatment programs exist is to provide treatment to clients. Treatment is the single most critical activity that takes place within the program. Treatment itself will take on as many unique forms as the wide range of programs in existence. Despite this disparity, programs do share one thing in common--the need to summarize the client's treatment program and progress. This summary is performed in the client's clinical record by updating the treatment plan and recording progress notes. The information placed in the clinical record enables the therapist to obtain an accurate picture of the client's original status and goals, current status and progress, and future plans and objectives. In addition the information contained in the clinical record enables the drug abuse treatment manager to accomplish his/her evaluation activities (discussed in Module 1).

Properly documenting each client's history, problems, treatment, and progress in the clinical record should be a routine and painless activity. In many instances however, it becomes quite painful due to the lack of organization, principles, and procedures for setting up and maintaining the clinical record. An organized and uniform record which embodies generally accepted principles is essential within any sound client management system. Without these principles the extraction of critical information such as client contacts, type of therapy provided, and/or client responsiveness to treatment is virtually impossible.

Essential ingredients of a sound clinical record include:

- A comprehensive "data base"
- A treatment plan
- Concise and accurate progress notes
- A discharge summary
- Followup activities

Programs which have complete clinical records generally also have sound client management system and evaluation mechanisms. In developing a clinical record system, several decision areas will be encountered by program managers:

- What type of numbering system should be used?
- Should records be filed by client name or number?
- Should a Problem-Oriented Clinical Record System be implemented?
- How long should records be kept in an active status?
- Should retired records be microfilmed?

Answers to these questions will depend upon the specific needs of the program, services being provided in addition to drug abuse treatment facility available, financial resources, and program objectives.

Clients being discharged from treatment require the completion of a discharge summary. This is a one-page form which captures information required by Federal regulations and the JCAH standards. It documents the following specific information all of which is also required on the CODAP Discharge Form:

- Dates of admission and discharge
- Time in treatment
- Reason for discharge
- Employment status at discharge
- Educational status and current enrollment at discharge
- Drug use at discharge

In addition the form provides for a narrative summary of the discharge which is also required by JCAH. This narrative should be structured utilizing the problem-oriented format of the Treatment Plan and Progress Notes. Problems or treatments mentioned

should be referenced precisely to those mentioned in the Treatment Plan and/or Progress Notes. Brief summaries should also be written using the SOAP[1] method. Any plans or recommendations for followup care should be carefully detailed and explained to the client.

The form should be completed by the primary counselor within a week of discharge. The related CODAP Discharge Form can then be prepared by clerical personnel, preferably the client records clerk.

Followup activities, that is, client contact after discharge are at once the most difficult activity to carry through successfully but, when they are, serve to provide management with valuable information concerning the adequacy of treatment techniques. Specific followup activities should be defined by program management as part of the program evaluation functions. The key concern is establishing a means by which data can be gathered from clinical records and compared to client's current status outside the treatment environment. The extent to which followup activities are performed is very much dependent upon program resources.

Accounting and Financial Management Module

As funds for drug abuse treatment become more scarce (and as costs increase) all drug abuse treatment programs must move toward self-sufficiency. This means that program managers must provide services in as efficient and effective a manner as possible and earn maximum revenue. It also means that funding agencies must become more selective in deciding where and to what degree their funds will be applied. To fulfill these new demands, program managers and funding agencies need timely information about the financial status of the organization. Thus, a financial management and accounting module provides management information for two purposes:

- Internal management control: Recall that the last of the seven basic management questions asked "How much did it cost/earn?" In order to make decisions about future operations, expenditures, and revenue policies, the program manager must have information upon which to evaluate past operations, expenditures, and revenue policies.
- External accountability: Every treatment program is responsible to some outside group or agency for its funds: governing boards, the Internal Revenue Service, Federal and State grantors, third-party payers, and so on. These parties will use accounting data to determine the "credit worthiness of the program and its cost relative to other programs (i.e., competitors).

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[1]SOAP is an acronym for: Subjective (patient) observations, Objective (therapist) observations, Assessment Plan; the steps in the Weed system of problem-oriented charting.

An accounting and financial management system that meets the first (preeminent) purpose will invariably meet the second because the information required to fulfill internal requirements is much more detailed than that required by external parties.

Accounting is a body of generally accepted principles, practices, and standards among which are:

- Double-entry accounting
- Cost accounting
- Fund accounting
- Cash, accrual, or modified basis of accounting
- Consistency
- Conservatism
- Simplicity, accuracy, and flexibility

The following sections describe each of these concepts.

A sound accounting and financial management module should use a double-entry system of accounting. This approach to the "bookkeeping" aspects of accounting simply records the two sides of every financial transaction: the "debit" side and the "credit" side. Each time a debit is recorded, there must be a corresponding credit entry or entries of equal value. The double-entry system is self-balancing and self-correcting and thus serves as a safeguard against fraud or error.

Figure 8 summarizes the basic rules for the use of debits and credits in the asset and liability accounts. This presentation assumes that the reader has a familiarity with the basic mechanics of the double-entry system. If the program does not have an accountant, it should anticipate getting outside assistance in setting up the procedures and books by a professional accountant.

By answering the question "What did it cost?" the financial data gathered by this module is one of the most valuable tools available to management. These financial data must at a minimum reflect the overall financial status of the program. But the cost information should also describe the expenses related to the other basis management questions:

- Who?
- Provided what?
- To whom?

<table>
<tr><td colspan="2">Assets</td><td>-</td><td colspan="2">Liabilities</td><td>+</td><td colspan="4">Stockholder's equity</td></tr>
<tr><td>Debit</td><td>Credit</td><td></td><td>Debit</td><td>Credit</td><td></td><td colspan="2">Debit</td><td colspan="2">Credit</td></tr>
<tr><td rowspan="3">Increase</td><td rowspan="3">Decrease</td><td rowspan="3"></td><td rowspan="3">Increase</td><td rowspan="3">Decrease</td><td rowspan="3"></td><td colspan="2">Decrease</td><td colspan="2">Increase</td></tr>
<tr><td></td><td colspan="2">Expense</td><td colspan="2">Revenue</td></tr>
<tr><td></td><td>Debit</td><td>Credit</td><td>Debit</td><td>Credit</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>Increase</td><td>Decrease</td><td>Increase</td><td>Decrease</td></tr>
</table>

FIGURE 8.—*Summary of basic rules for use of debits and credits in the asset and liability accounts*

- When?
- Where?

It is theoretically possible to break down each financial transaction to answer each of these questions. Practically however, this is a cumbersome and tedious process. As a compromise programs will have to be selective about the level of detail in the accounting system. Information needs must be reviewed carefully to select only the few most meaningful categories. Consider:

- The relevance of the categories for routine management decisionmaking. For example, if specific individuals are responsible for cost centers, each must have information about the costs of his/her own operations.
- The degree of difficulty in collecting the information. For example, because hundreds or thousands of services are provided each week, it may be infeasible to record the costs associated with each one.
- The alternatives for obtaining similar information. For example, if utilization statistics are available from the client treatment module, estimates can be derived without having to accumulate all costs by service.

Using these criteria, the model accounting and financial management module will employ only three categories of the information classification system: the cost center code, the resource code, and the general ledger code. Combined, this system of coding will tell us:

- Where each cost was incurred (the cost center code).
- The type of expense (the resource code).
- The asset or liability account affected by the expense (the general ledger code).

This system is called "cost accounting" and enables one to (1) to prepare meaningful cost reports, (2) compare the planned to actual expenses, and (3) identify problems and assign responsibility for their remedy.

Fund accounting is a concept peculiar to nonprofit organizations. It arises from the grantor-grantee relationship wherein:

- The grantor requires accountability for the particular money provided to the treatment program.
- The grantor limits the uses to which the grant is put, i.e., the granted funds are restricted.

Fund accounting is accomplished by assigning fund codes from the ICS to each financial transaction. This enables the preparation of

expenditure reports according to fund and the comparison of actual to planned revenue by source.

One factor that must be considered in operating an accounting system is timing; at what point will financial transactions be recorded in the books? There are three alternative methods: accrual, cash and combination. Figure 9 illustrates the debit and credit entries required by each method.

Under the accrual method of accounting:

- Revenues are identified with the specific time period in which they were earned (i.e., billed).
- Expenses are identified with the specific time periods in which they were incurred.

The recordings are made regardless of the timing of the actual receipt of money or payment of debts. Note in figure 9 that the accrual basis appears slightly more complex than the cash basis. Nonetheless the accrual basis is generally considered to provide the most accurate picture of the true financial status of the organization. This approach also facilitates comparisons between financial statements from prior periods and from other organizations.

Under the cash method of accounting:

- Revenues are recorded at the time cash is actually received regardless of when it was earned
- Expenses are recorded at the time the bills are paid regardless of when the bill was incurred

As seen in figure 9, the single most important advantage of the cash basis is its simplicity; each financial transaction is recorded only once. However, depending on the timing of the cash flow, the cash basis can result in dangerously misleading financial reports that (1) overstate the cash "available," or (2) understate the revenue "earned." To the extent that these occur, the financial information generated by the AFM module will be less helpful as a management tool.

Two methods are commonly used that combine the accrual and cash bases.

- Part-cash, part-accrual method: Under this approach, also known as the "modified" or "hybrid" approach, most financial transactions are recorded on a cash basis. Only those large transactions that are certain to come to fruition are handled on an accrual basis.
- Cash basis accounting--accrual basis reporting: Under this basis of accounting, the treatment program keeps its books on a cash basis throughout the year but makes the necessary adjustments to record the accruals for yearend reporting.

Assume that a patient receives services from a drug abuse treatment center on December 20, 1976. For the purpose of this example, the reporting period is a 1-month period, December 1-31. The patient is charged $10 for the visit. The patient does not pay cash on the day of the visit but is billed for $10 at the end of December. Upon receipt of the bill on January 1, 1977, the patient remits the full $10.

UNDER THE ACCRUAL BASIS OF ACCOUNTING

- During December 1976 the accounting transaction would be:

Debit:	Accounts receivable	$10.00	
	Credit: Patient fees		$10.00

- The December 1976 income statement would show a $10 amount for income. (The amount is earned in December 1976.)
- In January when the patient pays, the accounting transaction would be:

Debit:	Cash	$10.00	
	Credit: Accounts receivable		$10.00

- During January no effect is made on an income account, only on two asset accounts.

UNDER THE CASH BASIS OF ACCOUNTING

- During December no entry would be made.
- During January the accounting transaction would be:

Debit:	Cash	$10.00	
	Credit: Patient fees		$10.00

- The January 1977 income statement would show income of $10.

FIGURE 9.—*Debit and credit entries under accrual and cash methods of accounting*

One of the chief functions of the accounting system is to aid comparisons of financial status from period to period. These comparisons enable the program manager to tell if he/she is "doing better or doing worse" than in the past. The accounting principle of consistency assures that financial reports and records are truly comparable from period to period. In striving for consistency it is wise to remember that:

- The accounting system procedures should be clearly documented. Written documentation serves three purposes:
  1. Eases transition when there are changes in accounting staff.
  2. Facilitates audits and assures that auditors interpret records appropriately.
  3. Provides materials for training when the system is implemented.
- The need for consistency should not rule out implementation of a new system if the old system has proven inadequate.

Usually accounting is perceived as a "black and white" activity. But actually there is considerable room for judgment in recording financial transactions. The concept of conservatism in accounting refers to the concept of not overstating income and owner's equity.

It may seem self-evident to state that the accounting system should be simple, accurate, and flexible. But often these guiding principles are lost in the confusion of designing and implementing a new system.

- Simplicity: The accounting system should be as simple as is consistent with the principles of good management. In most instances the degree of simplicity that can be achieved is dependent upon the size of the organization and the nature and volume of its financial transactions. Simplicity should not be promoted as a goal in itself and should not be exercised at the expense of some of the more important concepts discussed here.
- Accuracy: An accounting system should be set up in such a way that there can be no question as to the accuracy of the event or transaction that is recorded and subsequently reported.
- Flexibility: Since it is difficult to predict with accuracy the nature and volume of financial events and transactions an organization may have to handle from time to time, it is essential that the accounting system used be flexible enough to accommodate the various contingencies and eventualities.

There are basically two types of financial transactions:

- Those which deal with money coming in
- Those which deal with money going out

Consequently the accounting and financial management module could be divided into transaction types:

- Income and accounts receivable (the forms and procedures related to money coming in)
- Payroll
- Invoice processing (relating to all other [nonsalary] expenditures)

These three are tied to each other and to the larger system by two additional subdivisions:

- The general ledger (the final accumulation of all financial information in the accounting system);
- Cost accounting (accumulates financial data according to the relevant categories of the ICS and thus is the source of the management cost reports).

To assure that all service encounters generate the appropriate charges and bills, income and accounts receivable must interface closely with client treatment. The normal course of events that occurs when a client enters the program and receives treatment is summarized below:

- The admission form provides a cue to the accounting office that a client accounts receivable ledger card is to be prepared.
- The encounter form (a normal offshoot of the client treatment process) is "shared" with the accounting office and prompts the following events:

  1. The charges are recorded in the accounts receivable ledger card and the new balance is computed.
  2. The patient bill is prepared.
  3. The billing journal is updated.

- Weekly or monthly the billing journal entries are posted to the general ledger using the following entries:

  Debit Accounts receivable: Medicaid

  Credit Income: Medicaid

Additional entries are, of course, required to account for payment or for writing off the debt as uncollectable.

One of the most expensive and important recurring functions of any accounting system is preparation of the payroll. Procedures should be devised that minimize the time required to prepare the payroll and that minimize the possibility of error or fraud. The following procedures are generally required:

- Each employee's status (or change in status) must be indicated on the payroll change slip which prompts the creation (or change) in the individual pay card.
- The time and attendance report or staff activity log generated during the client treatment process provides the basis for biweekly or monthly:

  1. Update of the individual pay card. At this time the gross pay, deductions, and net pay are computed.
  2. Update of the payroll journal.
  3. Update of the leave register.

- The entries on the payroll journal are summed and totals are entered into the general ledger using the following notations:

  Debit Salary expenses

  Credit Cash

  Credit Withholdings

- The salary expenses must then be summarized according to the relevant categories in the ICS and posted to the cost accounting ledgers.

Considerable caution must be exercised in the drawing and distributing of checks.

Regardless of whether the cash or accrual basis of accounting is used, the voucher system is an effective method of establishing control over expenditures. Properly utilized the voucher system will insure that all:

- Invoices are authorized and reviewed prior to payment.
- Purchase discounts are optimized.
- All expenditures are handled in a consistent manner and can be readily reviewed if questions about payment arise.

Illustrative transactions as they relate to an accrual system are highlighted below:

- Receipt of an invoice prompts review of the receiving report to determine that the goods and services have been received.
- The invoice is checked for arithmetic accuracy.
- A voucher is prepared, authorized, and entered into the voucher journal.
- Biweekly or monthly the totals in the voucher journals are posted to the general ledger using the following entries:

  Debit Expense or asset account

  Credit Accounts payable

  Adjusting entries are required (from the cash disbursements journal) when the account is paid.
- The expenses must be coded with the appropriate ICS codes and posted to the cost accounting ledger.

The first step in designing and implementing an accounting and financial management module is to create a general ledger (or chart of accounts). The second step is selection of the ICS categories that will comprise the cost accounting ledger. Only when these two "submodules" have been confirmed will an agency be able to develop a module which is responsive to the unique needs of the program.

Program Evaluation Module

One of the chief purposes of an MIS is to collect statistical data that are relevant to the decisionmaking process in the treatment center. In addition to making day-to-day decisions, the program manager must periodically look back over past operations to review what actually happened and determine:

- If program goals and objectives were reached.
- What changes should be made in the future.

This program review completes the management cycle and provides a "feedback loop" that connects the prior period with the coming period.

Program evaluation is the process of collecting, tabulating, and analyzing data to answer questions relevant to program goals, objectives, and activities. It usually compares actual program operations and results with previously planned program operations and results.

This simple definition should not be allowed to mask the complexity of evaluation. Evaluation is a topic that is difficult to discuss unless all parties share a common set of definitions and concepts.

The next three sections describe three key (and often confused) characteristics of program evaluation.

The purpose of program evaluation is to measure actual against planned performance. But the performance or accomplishments of a drug abuse treatment center can be defined in any of three hierarchical ways:

- Process: The most rudimentary measures of success are the processes, activities, or tasks performed. Process measures correspond to specific quantified activities. A process evaluation question might be: "Did we provide methadone maintenance services to 100 clients 3 times per week?"
- Outcome: A more significant measure of success is the outcome or results of the activities. An outcome evaluation question might be: "Were we successful in reducing the level of unemployment to 25 percent?"
- Impact: The ultimate measure of success is the impact of the activities and the outcomes. Impact measures correspond to the broad goals of the program and tell whether the program made any significant contribution to the target population. An example of an impact evaluation question would be: "Has the amount of drug abuse in the community decreased by 10 percent?"

These three types of evaluation each serve a valid--but different--purpose. They form a hierarchy of importance and are connected by the following assumptions:

- When measuring process, the assumptions are that: If we complete certain activities, then we will reach our objectives and, hence, our goals.
- When measuring outcome, the assumption is that: If we reach our objectives, then we will reach our goal.
- When measuring impact, no assumptions are necessary because impact studies are addressed directly at the question of goal attainment.

In the long run, only the latter form of evaluation tells with certainty that the goals have been met. But as a practical matter most routine evaluation is designed to measure process or outcome.

Another reason why people have difficulty communicating about program evaluation is because of its diverse nature. Evaluation is an entire discipline, the various types of which fall along a continuum. Such a continuum has characteristics which are defined in relation to specific goals and objectives and which change over time.

Evaluation projects themselves are a form of "business activity" and so can be described by common terminology regardless of

their specific purpose. The evaluation cycle comprises the following steps:

- Deciding what is to be analyzed.
- Identifying the measurement criterion, standard, or value against which success will be judged.
- Identifying the information needed to perform the analysis.
- Determining the procedures necessary to collect, tabulate, and analyze the data.
- Collecting, tabulating, and analyzing the data.
- Reaching conclusions about the data and deciding what changes, if any, are necessary.

Process evaluation is usually less difficult than impact or outcome evaluation but all types require the same basic steps.

Evaluation projects can be very complex or relatively simple and as the complexity of the project increases, the information requirements become more voluminous and complex. A general purpose MIS cannot meet all of these complex information needs. One of the major operational objectives of the MIS is that it can be efficient and simple and provide information necessary for routine decisionmaking. Process Evaluation is easily established in an MIS on a continuous basis because all information required for process evaluation is necessary for other purposes in the accounting and financial management and client treatment modules. The information generated routinely by the MIS may assist in outcome or impact evaluation but it is rarely sufficient by itself. Special evaluation studies will usually be required to respond to outcome or impact evaluation questions.

By suggesting that the outcome evaluation capabilities of the MIS are limited, we do not suggest that the other realms of evaluation are less important. Rather, outcome is ultimately one of the most revealing approaches of program evaluation and should be addressed through more sophisticated and flexible research efforts.

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