AUSTIN-TRAVIS COUNTY HEALTH DEPARTMENT'S INFORMATION SYSTEM

by Richard F. Shoup, MA and Albert G. Randall, MD

Austin-Travis County Health Department
1313 Sabine St., Austin, TX 78701

ABSTRACT
In response to increased organizational complexity, reduced financial resources and an expanding client population, an Information Management Division was created within the Austin-Travis County Health Department in March 1982.

An important component of this Division is the Information Systems Plan which insures the systematic collection, storage and analysis of data and information used by managers to facilitate decision making and to meet reporting requirements. In addition to providing Public Health Services to the community, the Health Department is responsible for indigent health care. After three years of managing the Medical Assistance Program for indigent care, it became apparent that a shared data base with city-owned Brackenridge Hospital was appropriate to insure continuity of health care, program monitoring/evaluation and effective discharge planning.

WHY IS INFORMATION MANAGEMENT NEEDED?

The responsibilities of the Austin-Travis County Health Department, with over 350 employees serving a population approaching 450,000, have greatly increased in recent years. Along with increased program responsibilities have come increased needs for efficiency and accountability. These needs have been addressed by expanding our data collection and analysis capability and by automating the generation and production of information and reports. This effort towards increased efficiency is especially important during this period of decreasing financial resources.

According to most sources, the importance of information management in the public sector is obvious and evolved from the fact that "paperwork is an ubiquitous aspect of the modern public organization."4,5

The importance of good information systems in a health care organization can be explained in part as follows:

1. The health care delivery process is extremely dependent on information.
2. Management decisions are the product of two ingredients: information and intuition.
3. The health care industry is very much in the public eye with increasing pressures to generate a wide variety of information for consumers and government.7

The challenge of delivering health care on a more cost effective and equitable basis has led to the formation of new kinds of health care organizations which in turn require new kinds of management information systems.3 More administrators of human service agencies are turning to automation to provide operational support for and to identify accomplishments of social service programs. The "new era of accountability requires more than ever before that agencies demonstrate achievement of results to receive funding for expansion or even continuation of present services."2 Beyond accountability, the value of an information system lies in its support for decision making at all levels of the organization.

Information is a management concern and should not be left to a purely technical (computer) staff.3 Information should also be viewed as a manageable and budgetable resource.6 Obviously, a good Information Management capability within an organization can enhance decision-making. This enlarged capacity has been shown to be an effective component in reduction of cost of health care.

WHAT IS INFORMATION MANAGEMENT?

To understand Information Management, the concepts and syntax used in the field should be defined. These concepts are not theoretical, but "have evolved with computerized data processing."9 While most human service organizations can provide a detailed explanation of how the budget relates to each section of the organization and to the overall goals and objectives, few can provide the "same analysis and breakdown of the information needed to drive their organizations."9
COMPONENTS OF THE INFORMATION SYSTEM

The Health Department's Information System consists of a hierarchical Ambulatory Care Data Base, specific program-related Statistical Package for Social Sciences software applications with time-sharing on Brackenridge Hospital's IBM 4341 "mainframe" and the joint-operation of an IBM 3140/OPCX Distributed Office Communication System. The Information System thereby provides the link between Brackenridge Hospital data processing staff and information users within the Health Department's three primary care clinics and seven satellite locations.

The Information Systems model is modified and presented below and is composed of four subsystems:

A. The Services Subsystem
B. Client Data Subsystem
C. Agency Management Subsystem
D. The Planning and Evaluation Subsystem.

Each component will be examined. Both data elements and file type of primary concern is the client Data Subsystem which will be discussed in greatest detail.

SERVICES SUBSYSTEM

The Services Subsystem consists of two file types: Agency Services and Information and Referral. Their respective program and subprogram support services are as follows:

A. Agency Services

PROGRAM FILES APPLICATION

Birth Certificate SPSS/Batch File (1980-Present) Brackenridge Hospital Interactive Patient Data Base Computer-Assisted Interactive Dietary Analysis Death Certificate SPSS/Batch File (1980-Present) Health Department Interactive Ambulatory Care Data Base Environmental Health Interactive Permit System (Environmental Health Services)

Both Brackenridge Hospital and Health Department D/L Data Bases are hierarchical in structure and were programmed by Brackenridge Hospital programming staff. Comparability is assured through use of a unique shared patient/client identifier, the Medical Record number. Users on the system can access both data bases with updating and merge capabilities limited by individual password and CRT specific access. Statistical analysis of both data bases is accomplished using SPSS.

The Environmental Health Permit System, developed by the City of Austin Information System programming staff in 1980, is an on-line file management system which monitors the status of food management inspections for all Austin-Travis County food establishments and provides management reports on request.

The computer-assisted Dietary Analysis software application developed by the Nutrition Department at the University of Texas at Austin is used by health department nutritionists to calculate nutrient intake for selected clients and as a component of the Health Department's Employee Wellness Program.

B. Information and Referral

PROGRAM FILES APPLICATION

Brackenridge Patient SPSS/Interactive Data Base Health Department SPSS/Interactive Ambulatory Care Data Base

The concern for information and referral data on Health Department clients necessitated their inclusion in the data base. This element provides data on both inter- and intra-agency referral by both specific provider and agency. Such data helps to insure continuity of medical care through resource linkage and community-wide networking with other health and human service agencies and private physicians (Figure 1).

FIGURE 1

C. Client Data Subsystem

Client Background and Case Management provide the two file types comprising this subsystem.

I. Client Background:

PROGRAM FILES APPLICATION

Health Department Ambulatory Care Data Base SPSS/Interactive Brackenridge Patient Data Base SPSS/Interactive
2. Case Management:

**PROGRAM FILES**

- Health Department Ambulatory Care Data Base
- Brackenridge Patient Data Base

The effectiveness of a health care data base "derives from the fact that from a single comprehensive data base much of the information relevant to a variety of organizational purposes may be obtained." Similarly, data bases compatible and accessible by both Health Department and hospital offer unique advantages. The Health Department's Ambulatory and Hospital's Inpatient Data Bases provide useful data for evaluating many elements in the health care continuum.

In a public health setting, COSTAR has been shown to be most effective. It is not adequate for providing inpatient registration and admission, however. The SHAS architecture presently in use in Brackenridge Hospital has shortcomings which will be resolved with the purchase of application software for patient accounting and financial management. The health department will have access to both systems as well.

C. Agency Management Subsystem

The Agency Management Subsystem consists of three file types: Office Management, Personnel and Fiscal Management. They are defined as follows:

1. Office Management:

**SYSTEM**

- 8100/DPCX Distributed Interactive Office Communication

The Distributed Office Support Product (DOSF) purchased with the IBM 8140, provides basic text functions, local storage of documents on disk and has the capability of handling forms, pattern letters and mass mailing documents. The 8140/DPCX system, for example, with the Distributed Interactive Office Support System (DISOSS), provides a "library" capability that permits creation and maintenance of shareable document files at a host computer, the distribution of messages and documents and the interaction between any users on the system.

In future office automation, word processing will be integrated with both organizations' data bases and will be used both as data entry terminals and as a "window" into the data files stored on the main frame.

2. Personnel Management:

**PROGRAM FILES**

- Personnel Program

With a significant portion of the Health Department budget allocated for personnel costs, the Personnel Program Application was developed to provide the means for determining the amount of staff time utilized in all departmental areas. In addition, hourly salary rates for each employee are maintained on a separate file which allows management to determine exact personnel program costs by program over a specified period of time. This mechanism is also quite effective in allocating personnel costs for categorical programs.

3. Fiscal Management:

**PROGRAM FILES**

- Financial Management Information Interactive System (FMIS)

The financial Management Information System is currently available interactively through the City of Austin's Information Systems Department and provides daily updates of departmental expenditures and revenues. Monthly microfiche and computer output are available for all program managers.

D. Planning and Evaluation Subsystem

The Planning and Evaluation Subsystem had three file types: Planning, Evaluation and Monitoring and Control. File types and components are listed and defined below:

1. Planning:

**PROGRAM FILES**

- Health Department Ambulatory Data Base
- Birth and Death Files

2. Evaluation:

**PROGRAM FILES**

- Health Department Ambulatory Data Base
- Person Flow Analysis (PFA) (NFPRHA)

Patient Flow Analysis (PFA) is available for use through the National Family Planning and Reproductive Health Association (NFPRHA) and was originally developed by the Center for Disease Control (CDC). PFA is an excellent operational control instrument that evaluates both staff utilization and patient flow in a clinic setting. A modified version of PFA may be installed in-house in the near future.

3. Monitoring and Control:

**PROGRAM FILES**

- Financial Management Information System (FMIS)
- Health Permit System

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As previously discussed, the FMIS available both interactively and on microfiche, allows the Health Department to monitor all financial information, including grants and contracts.

SUMMARY

Current reductions in federal funding for health and human services necessitate improved fiscal management and accountability. It seems appropriate for public health departments to develop information management components capable of consolidating data collection, analysis and interpretation.

An expanding client population in Austin and Travis County necessitated development of a data base capable of providing comprehensive client data. Since many of the Health Department clients are also provided inpatient and emergency room services at Brackenridge Hospital, mutually-accessible data bases seemed advantageous.

Although in the first year of implementation, the collaboration between a local Health Department and Hospital appears to be a reasonable solution to the information needs of both agencies and allows the Health Department access to software and hardware often considered too costly for a human service agency.

REFERENCES


