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A model for rational decision-making in administration of mental retardation services.

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A MODEL FOR RATIONAL DECISION-MAKING
IN ADMINISTRATION OF MENTAL
RETARDATION SERVICES

A Thesis Presented
By
ELLSWORTH A. PEARL

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of
MASTER OF ARTS

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Political Science
A MODEL FOR RATIONAL DECISION-MAKING
IN ADMINISTRATION OF MENTAL RETARDATION SERVICES

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June 1973
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
</tr>
<tr>
<td>CHAPTER</td>
</tr>
<tr>
<td>I. THE MODEL TECHNIQUE FOR RATIONAL DECISION-MAKING</td>
</tr>
<tr>
<td>Rationality in Decision-Making for the Social Services</td>
</tr>
<tr>
<td>Some Special Problems in Rational Decision-Making in the Public Sector</td>
</tr>
<tr>
<td>Data and Models for Rational Decision-Making</td>
</tr>
<tr>
<td>Organizational Models and Rational Decision-Making</td>
</tr>
<tr>
<td>Models as a Device for Rationalizing Decision-Making</td>
</tr>
<tr>
<td>II. THE CONSTRUCTION OF A DATA MODEL FOR RATIONAL DECISION-MAKING IN THE DELIVERY OF MENTAL RETARDATION SERVICES</td>
</tr>
<tr>
<td>The Use of the Data Model in Public Health Administration</td>
</tr>
<tr>
<td>Some Basic Definitions of Retardation</td>
</tr>
<tr>
<td>Determination of the Number of Retarded</td>
</tr>
<tr>
<td>Estimating the Service Need</td>
</tr>
<tr>
<td>III. AN ORGANIZATIONAL MODEL FOR RATIONAL DECISION-MAKING IN THE DELIVERY OF MENTAL RETARDATION SERVICES</td>
</tr>
<tr>
<td>Problems in Mental Retardation as They Relate to Organization</td>
</tr>
<tr>
<td>Organization of Mental Retardation Services</td>
</tr>
<tr>
<td>Structuring a Model Organization for Mental Retardation Services</td>
</tr>
<tr>
<td>IV. ADMINISTERING THE MODELS FOR RATIONAL DECISIONS</td>
</tr>
<tr>
<td>A Review of Some of the Tools and Techniques for Managing a System</td>
</tr>
<tr>
<td>Budgeting as a Tool for Rational Decision-Making</td>
</tr>
<tr>
<td>Structuring a Budgetary Model for Rational Decisions</td>
</tr>
<tr>
<td>Cost Finding as a Management Tool</td>
</tr>
<tr>
<td>Rational Decisions and the Use of Models - A Summary</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
</tr>
</tbody>
</table>
INTRODUCTION

The purpose of this paper is to demonstrate that rational administrative decision-making can be enhanced with the use of the model technique.

There will be no attempt to deal with the extremes of opinion covering man's ability to behave rationally. These extremes are represented by the mathematical model-makers who tell us that decisions can be quantified and solved by equations, and by the behavioral scientists who tell us that men are motivated by forces that make rational decision-making nearly impossible. Instead, this investigation will be based on the concept that men are a mixture of rationality and irrationality, and for this very reason administrative systems should be designed to maximize the rational aspects of the decision-making process.

An attempt will be made to demonstrate how the reduction of the elements of a problem to a model can increase the probability of rational decisions. After a discussion of some of the basic theory of decision-making and model design, the specific problem of designing a model for mental retardation services will be addressed.

In almost all jurisdictions, mental retardation services are the product of compromise with public pressure rather than systematic rational decision-making. It is not contended that a public service can be completely removed from political process, nor should it be. However, it will be shown that much of the process of delivering services can be placed in a rational framework using a model technique.
The problem selected to demonstrate the use of a model technique lends itself well to understanding, because it incorporates three basic kinds of models. The mathematical model will be used to develop the caseload and services required. An organizational model will be used to demonstrate the recommended jurisdictional relationships, and a schematic model will be used to demonstrate some of the administrative techniques of managing the services within the context of the recommended organization.

The basis of discussion will be the existing system of mental retardation services in the State of New York, but the recommendations will have application to both systems of services for the handicapped and public administration in general.
CHAPTER I

THE MODEL TECHNIQUE FOR RATIONAL DECISION-MAKING

Rationality in Decision-Making for the Social Services

A truly rational decision is nearly impossible, except on the most simple basis. Preset disposition, fear or other irrational elements are always present. Also, a purely rational decision can be made only in the context of complete understanding. The limitations of the human mind and the existing state of information systems usually prohibit complete understanding. Therefore, for the purpose of this paper, a rational decision will be defined as a decision made in the context of understanding and with conscious effort to minimize irrational elements.

Decision-making in administration is not an exact science. It is based on the testing of hypotheses similar to economics and the measurement of the causes and effects. It is not as much a set of rules as an attitude that strives to replace "I think" with "I know" in the decision-making process. The elements of rationality are not rules or even axioms but conditions that can affect the level of rationality in a decision.

Some of the more important elements of a decision of any problem solving situation that have a direct impact on the potential for rational decision-making are:

1. The scope of the problem: The greater the number of elements and the greater the complexity of relationships, the more difficult the rational decision.
2. The environment of the problem: Rational decisions are more often made in an atmosphere of cool reflection than in harried pressure.

3. The uniqueness of the problem: Rational decisions are difficult when experience data is missing.

4. The political acceptance of the decision: Prior knowledge of the probable acceptances of the alternatives encourages rational decisions.

5. The ability to quantify the problem: Alternatives that can be reduced to numbers enhance the likelihood of a rational decision.

6. A definition of the goals to be achieved: To avoid the pitfall of changing the goal to meet the decision, a clear understanding of the ends to be achieved is necessary.

Herbert Simon dissects the components of rational decision-making in *Administrative Behavior*. Through an arduous deductive process he develops an operational definition that regards a decision as rational when it is conceived as an act that contributes to the ends (goals).¹ In this way, the concept of "rightness" as a contributing factor to rationality is avoided.

Simon's approach lacks one very necessary element to make the definition a usable tool: conscious effort to understand the problem. If a budget director makes a decision to authorize additional

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expenditures to provide staff for needed services under Simon's definition, it would be rational if the decision was made to further the ends of the organization. Let us suppose that this same budget director made this decision without an expenditure analysis to determine if there were funds to support the decision. The decision was not made within the context of understanding, and cannot be considered rational by the definition offered in this paper. Although, like Simon, the "rightness" is not a criterion for rationality. If the expenditure analysis had been poorly done and had indicated approval of the expenditure when, in fact, there were not sufficient funds, the decision would still be defined as rational, because the attempt to understand was made.

It is with good reason that this discussion of rational decision-making is receiving such detailed examination. The "deck is stacked" against today's administrator. The inherent difficulties in reaching rational decisions are compounded by ever-accelerating social change. There is no need here, to offer detailed evidence that social change is occurring at an exponential rate; the evidence is everywhere. What concerns us more is the impact of rapid social change on rational decision-making in public administration.

Max Weber envisioned administration as constantly striving for rationalism with the intrusion of what he calls "charismatic leaderships" disrupting the process. He extrapolates further that charismatic leadership and, hence, non-rational decision-making, occurs when the
bureaucracy breaks down. To some extent this appears to be a truism. When the system breaks down and the orderly flow of information is interrupted, decisions will be based less on understanding and more on instinct or hunch. Therefore, the building blocks of the model to be constructed must be arranged in such a way that decisions are made in the bureaucratic context, not Weber's charismatic context.

Some Special Problems in Rational Decision-Making in the Public Sector.

Over-simplified examples may help highlight the special problems of decision-making in the public sector.

The chief executive of a manufacturing company must eliminate a product line. Money for needed expansion is scarce and inventory space is inadequate. His first step is to call in the cost accountants and ask for cost and profit analysis of all present products. From this unit cost and profit analysis, a decision is made as to where a cutback can be implemented. Of course, there can be complicating factors; such as, labor relations if work force reductions are necessary or community relations if a plant is to be closed.

However, consider an analogous situation of a public official who must cut services because of an appropriation deficiency. Suppose further that the choices for cutback are direct human services.

The six elements of rational decision-making, described earlier, are all impinging on him in a negative manner.

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The scope of the problem. Because human services are involved, the number of elements and the complexity of relationships are vast. The clientele, state and local government, the labor force, and special interest groups to name a few.

The environment of the problem and the political acceptance of the decision. Because of the political framework of public administration, the environment of such decision must take into consideration elements that may not lead to a rational decision.

In New York State, for example, the population in the state hospitals for the mentally ill has dropped from well over 90,000 to under 40,000 in a few years. Yet not a single hospital has been closed, causing large sums to be expended on up-keep of aging physical plants of little utility. These funds are needed elsewhere to support the mentally ill now in the community and to improve services to the mentally retarded. The rational decision to redirect these funds cannot be made because of the political environment that protects the community faced with the economic difficulties of a hospital closing. In this kind of charged environment, rational decisions are difficult. Some might say that the ultimate rationality is the will of the people, but this paper will not engage this philosophic question.

The uniqueness of the problem. The impact of rapid social change is more directly felt in the public sector. This tends to allow fewer routine or automatic kinds of decisions. Later in this chapter it will be shown that routine decision-making increases rationality.
The ability to quantify the problem. Certainly a cost/profit decision lends itself to quantification. On the other hand, a cost/benefit decision for a direct public service is very difficult to quantify. It is nearly impossible to place degrees of human happiness in anything but the most subjective framework. Those working in the public sector know that rarely is there sufficient data to make any but the most routine decision with complete rationality. Even with elaborate and integrated data and information systems, there is nearly always some very necessary bit of information missing. Even after a decision is made in an atmosphere of maximized rationality, it can be overturned by a policy-maker whose charge is to implement public policy, rational or otherwise.

The clarity of definition of the goals to be achieved. For the most part, the goals of the business organization are clear. The profit motivation may be mitigated by some of the values of the business decision-maker, but the pervasive objective is survival of the organization in the competitive marketplace.

With public service the objectives and goals are not as tangible. What are the objectives of an organization charged with treating the mentally retarded? Are they to maximize the happiness of the retarded, are they to separate unpleasant kinds of people from the rest of society (some still think so), or are they to make the retarded self-supporting members of society, or at least to keep the cost of their maintenance to a minimum?

Rational decision-making without clear goals is very difficult.
Faced with these kinds of difficulties, the public administrator must try to control the environment of his decisions in order to encourage the elements of rationality while realizing that decisions of any magnitude will contain some degree of guess. One way the environment can be controlled is through the use of models.

Data and Models for Rational Decision-Making

In the ground breaking work, Administrative Behavior, Simon states:

Rationality implies a complete and unattainable knowledge of the exact consequences of each choice. In actuality, the human being never has more than a fragmentary knowledge of the conditions surrounding his action.3

Every manager knows this, and if he does not he is probably a poor decision-maker. On realization that complete knowledge is unattainable, there is sometimes a negative reaction to the use of data and information systems. For example, few organizations of any significant size know how many and where people are employed at any given time. The frustration and dismay of a decision-maker when he discovers this is rather universal. Many times a counter-productive attitude toward the use of available data results. The data is rejected as inaccurate rather than as a usable estimate. An atmosphere may develop in the organization that encourages intuitive rather than rational decisions based on available data. This phenomenon can be more readily found in the public sector where quantification of the problem is inherently more difficult.

3Simon, Administrative Behavior, p. 81.
Despite this, the public administrator must emulate William Gore's manager of a baseball team who "In plain language...must train himself to make choices in terms of odds instead of in terms of his anxieties." So too, in creating a model for rational decision-making, it must be structured in such a way that it encourages decisions "in terms of odds."¹

There are several ways in which the use of data in decision-making can be encouraged. The model to be developed in subsequent chapters should contain these factors:

1. Data and information systems should be built into the organizational structure.

2. The organization should be constructed in such a way that raw data is refined as it moves up through the hierarchy, and is converted to information systems that present the problem to the decision-maker in terms of alternatives.

3. Where possible, problems should be quantified. In the administration of human services, the claim is often made that "you cannot quantify human happiness."

While it is true that an interval scale of the degree of human happiness cannot be established, there are other ways of quantifying these problems. Elected officials have made the decision as to who should receive what service. The administrator can at least establish systems of measurement for:

a. A census of those who need the service.

b. A count of those actually receiving the service.
c. The unit cost of delivering the service.
d. A cost finding system in terms of meaningful components of the service.

4. As many decisions as possible should be reduced to automatic or routine decisions and made at the lowest possible organizational level.

5. Data systems should be integrated. Too often, the various data systems of an organization are not only not integrated but also not translatable. This is particularly true in the public sector where one often finds budget categories, objects of accounts, cost data and program categories in different and untranslatable terms.

6. Where possible, information should be expressed in terms of the organization's purpose or goals not in terms of objects. In the public sector, too often program planning is stated in terms of items of expenditure.

The integration of data and information systems into the organization is an important contributing factor to rational decision-making and should be reflected in the model.

Organizational Models and Rational Decision-Making

The concept of decision-making as being at the center of understanding organizations is accepted by political scientists. From Barnard to Simon, this clue to understanding is offered. Barnard
regarded organizations as a rational system of orderly decision-making.\(^5\) He saw the system as hierarchical in nature as opposed to Simon's more complex decision process. Simon states it well when he writes:

> The task of "deciding" pervades the entire administrative organization quite as much as the task of doing...A general theory of organization that will insure correct decision-making...\(^6\)

Although "correct" decisions cannot be insured, the organizational model should strive to enhance decision-making "in the context of understanding and with conscious effort to minimize the irrational elements." This was the definition of rational decision-making established on the first page of this chapter.

It is possible to conceive, in the abstract, a model for rational decision-making that could control actions of the decision-maker and nearly guarantee a rational selection. A tree diagram could be constructed guiding each choice. In real life, of course, the selection process is so complex that the size of the tree would make it unusable. So that this decision table approach can be dispensed with without a long discussion, this example of a simple two-choice table is offered in Figure 1-1.

Suppose the objective of the decision-maker is to achieve the maximum value for his decision. He should choose, in order, decisions \((Y_1), (Y_3), (Y_7)\). However, if he is forced to make choice \(X_1\), he should then choose choice \(X_3\) and \(X_7\). And lastly, if he is forced to choose \(X_2\), then he must try for \(X_5\) to maximize the value.


\(^6\)Simon, Administrative Behavior, p. 1.
FIGURE 1-1

Two-Choice Decision Tree

DECISION MAKER

X₁

X₂

X₃

X₄

X₅

X₆

X₇

Y₁

Y₂

Y₃

Y₄

Y₅

Y₆

Y₇

10

20

30

40

50

60

70

80
Some of the proponents of this logical/mathematical approach would tell us that we could carry this further and calculate the probability of each value. The probability of receiving the maximum value of 80 would be \((.5) \times (.5) \times (.5)\) or .125. Attractive as this approach seems, there are several reasons why it will not be used as a method for rational decision-making when designing the organization model in chapter #3:

1. Few decisions in administration are two-choice decisions.
2. The consequences of each choice cannot be predetermined, particularly in the public sector.
3. The relative value of the alternative goals is seldom known.
4. Many times in the public sector alternative goals to maximize value are not available. If a company is not tooled-up to produce a particularly profitable line, it can settle for the next most profitable line. This kind of option is usually not available in public administration.
5. As mentioned earlier, the size of the decision table for anything but the simplest choices would be unusually complex.

In real life application, a model is constructed that provides for orderly upward referral when two choices either conflict or are beyond the capabilities of the decision-maker. Too many organizations are designed in such a way that legitimate but conflicting choices are disruptively contested at lower levels. The winner may be the most skilled maneuver, while the loser is the organization in terms of rational decision-making.
Victor Thompson, in Modern Organization, finds several insights in structuring rational organizations. Thompson, argues that modern bureaucratic organizations are a response to scientific and technical advances when he states:

The growing dominance of the spirit of rationalism in modern bureaucracy simply reflects the growing influence of scientific and technical specialists upon organizational decisions.7

Out of this, he sees a striving for a "routinization of organizational activity."8 The search for rationalism through routinization has accelerated the trend toward specialization. This process can be encouraged by constructing models that "depend upon a factoring of the general goal into subgoals and these into sub-subgoals, and so on."9 This is basically the process to be used in the model construction in Chapter III. The more complex behavioristic approach may provide a better understanding of the decision-making process in an existing organization, but it is not as useful when building a model organization.

To fully understand the decision-making process in an organization, we must determine how individuals relate to each other to achieve the goals of the organization. The analysis would have to include understanding of the authority that stems from both the hierarchical aspects of the organization and the informal power structure. Informal source

9 Ibid., p. 15.
of authority is what Max Weber described as charismatic leadership.\textsuperscript{10} The influence of charismatic leadership on decisions can only be known in the sociometric sense. It is only the impact of the structure of the hierarchy that can be assessed when building a model. Consequently, the model should be structured in such a way that it leads to rational decision-making through clear definition of the formal or bureaucratic chain of authority and less concern with the informal sources of authority.

However, sometimes, when constructing a model generalities about attitudes of classes of individuals can be gleaned and this can be a useful input to the model. For example, if we know an organization will contain two major subgroups, such as technical and administration, it could influence the structure without prior knowledge of the interrelations of the individuals involved. Such is the case with the model to be determined later in the paper. It will be shown that the organization for the delivery of service to the mentally retarded will be managed by two major subgroups: medical and administrative. Each of these groups brings different perspectives to the problem that can be predetermined to some degree. This insight will have an influence on the approach, but basically the model will take the hierarchical form and subgoal or "compartmentalistic" form.

This "compartmentalistic" approach to organization models is particularly suited for the public sector, because the principle of accountability does and must pervade the system.

Public administration has moved toward more professional decision-making. The legal decision-maker, the budget decision-maker, the personnel decision-maker and the like have been created to handle the developing demand for a complex of social services. This has had the accompanying effect of moving the authorization to pursue a goal further from the implementation of that goal. As the implementation moves further from the original legislation, accountability becomes more difficult to fix. If decisions are "compartmentalized," then the responsibility for the decision becomes more visible and helps to maintain the principle of accountability.

Another advantage to "compartmentalization" is the efficiency to be gained from the "specialization of labors." The concept of efficiency used here is very close to the concept of rational decision-making.

Compartmentalization has some obvious disadvantages. There is always the danger of subversion of organization goals to process. This often occurs in the budget-making process, where program managers feel restricted by the realities of available funds. These feelings are sometimes accurate and sometimes not, but they are always a problem.

This organizational structure can and often does bring two subgoals into conflict. The resolution of these subgoal conflicts is a function of an organizational model that is basically hierarchical in nature. It involves the concept of unity of command. This concept will be discussed in some detail in Chapter III because of its direct impact on the resolution of organizational problems specifically related to the delivery of mental retardation services.
Models as a Device for Rationalizing Decision-Making

Many books have been written on the topics to which a few pages are devoted in this chapter. Most of the positions developed here could receive valid argument and counter argument. The purpose of these brief and somewhat superficial overviews is to establish the proper conceptual background for the more practical applications discussed in the remainder of the paper.

Some of the more important elements of rational decision-making have been reviewed, and the models developed should incorporate as many as possible. To assist in the transition to practical application, a summary of these elements is offered.

1. Quantification. Wherever feasible, the model should reduce decision-making to quantifiable values. Chapter II will offer a caseload model that will demonstrate that even some aspects of human services can be reduced to numbers. Chapter IV will demonstrate how this data can be managed in a systems sense.

2. Identification of Goals. The clarity of goals will be enhanced by the development of an organizational model that gives specific identity to the problem.

3. Control of the Environment. The organizational model will try to reduce the complexity of the problem by untangling some jurisdictional interrelationships.

4. Compartmentalization and Routinization. The organizational model will be constructed to reduce as many of the decisions
as possible to routine in nature. It will also offer an orderly upward referral of decisions that cannot be routinized. Chapter IV will demonstrate how routinization of decision-making can be fostered through management of data, budget and information systems.

5. Data and Information Systems. Since the essence of rational decisions is understanding, information systems to aid in understanding must be part of organization. Information systems should be not just an adjunct but an integrated component. Chapter IV will describe in more detail the design of information systems.

The models to be structured will not be completely abstract in nature. For the most part, they will be aimed at some very specific problems in the delivery of mental retardation services in the State of New York. It is hoped that some general insights into public administration will also be gained in this modified case study/model approach.
CHAPTER II

THE CONSTRUCTION OF A DATA MODEL FOR RATIONAL DECISION-MAKING
IN THE DELIVERY OF MENTAL RETARDATION SERVICES

The Use of the Data Model in Public Health Administration

The mathematical or decision table approach was rejected in
Chapter I. In this chapter, a data model will be constructed and it
will be shown how it can increase the rationality of decisions. This
is not as contradictory as might appear. In Chapter I, it was
contended that decisions could be programmed at only the simplest level
and that social values compound the difficulty of decision-making.
However, it was also proposed that reduction of alternatives to
quantifiable terms increases the probability of a rational decision.
To return to our example in the first chapter, a decision table probably
cannot help the public administrator decide which of the badly needed
services must be reduced. On the other hand, it would be of great help
if he knew:

1. How many people would be affected by each alternative.
2. The potential savings from each alternative.
3. The relative need for service.

Health information systems are either non-existent or so poorly
developed that these questions are usually unanswerable. The background
of a trained public administrator is such that he understands that
complete knowledge of alternatives is impossible. He tends to move
toward a decision with an attitude of maximized rationality. He makes his decision knowing that his confidence interval can never be 100%.

Most health systems are administered by men with scientific backgrounds who shy from making decisions with anything but the most well-developed and accurate data. Although this is an oversimplification, there is evidence that it has adversely affected the development of information systems in health administration. It may be symptomatic that some of the best studies in survey techniques and epidemiological research technology have been made in the public health field, yet such data is little used in the decision-making process of public health problems.

Once again, it is a tendency of the scientifically oriented mind not to use anything but the most validated data for decision-making. Since the early 40's public and business administrators have realized that rational decision-making can be encouraged with quantified inputs and that the structuring of this data into a model can further the cause.¹

In the State of New York, the delivery of services for the mentally retarded is evolving from an uncoordinated, multijurisdictional approach to one of integrated geographic responsibility.

The Department of Mental Hygiene has been trying to close some very large gaps in service by planning for complete systems of service by area. Yet, for the most part, resources have been allocated on the basis of public demand or on the educated guesses of professionals in

the field. The state has been fortunate in that program managers have been recruited from among the best in the world, so their "hunches" on relative needs have had a surprising degree of accuracy. However, they have been notably frustrated at the lack of quantified decision-making data. One area of particular concern is the determination of caseloads within a specific geographic area.

Once it is established that professionally acceptable surveys require a large investment of manpower and funds that are not available, resources allocation is based on "brushfire" management and reaction to problems only when they become intolerably visible.

This chapter will demonstrate how caseload data can be developed and structured into a usable model to aid in rational decision-making. The purpose of this model is to demonstrate a process, consequently the very important step of verifying the conclusions is not included. The results could be verified by employing the statistical techniques of random sampling and hypothesis testing. The verification is not included here since it would add little to the stated objectives of the paper.

Some Basic Definitions of Retardation

In this chapter, existing work in the area of mental retardation prevalence and treatment systems will be examined. Those deemed appropriate will be selected and used as the basis for the model. To establish a background for the reader, a brief examination of this disability is included.
Mental retardation must be regarded as one of the most serious public health problems. The extent of its health, social and economic impact in the U.S. was very dramatically described in a 1962 report to President Kennedy on National Action to Combat Mental Retardation:

- It afflicts twice as many individuals as blindness, polio, cerebral palsy and rheumatic heart disease combined.

- About 400,000 of the persons affected are so retarded that they require constant care or supervision.

- Over 200,000 adults and children, largely from the severe and profound mentally retarded groups, are cared for in residential institutions, mostly at public expense. State and localities spend $300 million a year in capital and operating expenses for their care.

- The Nation is denied several billion dollars of economic output because of the under-achievement, under-production, and/or the complete incapability of the mentally retarded.

- The untold human anguish and loss of happiness and well-being which results from mental retardation blight the future of millions of families in the United States.²

Mental retardation is not a concrete entity, but the result of many physical, social and psychological factors that may be completely interwoven.³ It stems from a wide variety of etiological sources involving a great range of impairments. For this reason, it is difficult to comprehensively define. A working definition, generally accepted in the United States, has been offered by the American Association on Mental Deficiency. Retardation is defined as, "...subaverage general


intellectual functioning which originates during the developmental period and is associated with impaired adaptive behavior.\(^4\)

For the sake of convenient classification, those working in the field arrange the degree of severity as follows:

- I.Q. 67 to 52 Mildly Retarded
- I.Q. 51 to 36 Moderately Retarded
- I.Q. 35 to 20 Severely Retarded
- I.Q. 20 to 0 Profoundly Retarded

These categories are useful only in the broadest planning sense. Other determinants, such as degree of accompanying physical, social and behavioral handicap, must be considered for a finite classification. However, it would be useful to give some broad definition to these categories:

**Mild:** Slow development. Children capable of being educated within limits. Adults, with training, can work in competitive employment. Able to live independent lives.

**Moderate:** Backward development, but able to learn to care for themselves. Children capable of being trained. Adults need to work and live in sheltered environment.

**Severe:** Motor development, speech, language are retarded. Not completely dependent. Often, but not always, physically handicapped.

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**Profound:** Need constant care or supervision for survival. Gross impairment in physical coordination and sensory development. Often physically handicapped.\(^5\)

**Determination of the Number of Retarded**

To determine workload for the management model, the number and degree of impairment of cases generated by a population must be estimated. A population base of 100,000 will be used as the basis for case-load estimate. Services areas can be varied greatly in size, but the resulting case-load from the model can be adjusted to fit any population size.

There has been a considerable amount of research to ascertain the prevalence of mental retardation. The results of these studies vary dramatically. The reasons for these variations will be examined briefly before trying to determine a usable prevalence rate.

1. **Social Expectation.** Although prevalence rates vary significantly from study to study, there seems to be agreement on the impact of social expectation. Several surveys of subnormal populations show a sharp increase of prevalence in adolescence and a steady decrease thereafter. In those years of greatest social demand, prevalence is at its highest point, steadily decreasing thereafter. This same phenomenon can be

\(^5\)George Tarjan, *The Problem of Mental Retardation* (an unpublished paper at the Neuropsychiatric Institute, Los Angeles, Calif.), p.2.
observed when varying degrees of demand are placed on the same individual by different social settings. A clearly identified retardate in an industrial setting can be lost in the general rural population. There is a lesson here that should be remembered when determining modalities of service; mental retardation can often be a social dysfunction and should be approached from this perspective.

2. Type of Survey. Rates of prevalence will vary with the method used to gather data or the population surveyed. Surveys that depend on the reporting of service agencies tend to generate prevalence rates much lower than those based upon a house-to-house approach.

The age range of the population surveyed will affect the rate above and beyond the social expectation factor in the mildly retarded group. This seems to indicate that the impact of social deprivation increases with age. A child who may be borderline normal at two years of age, may fall into mild retardation by age five.

3. Disciplinary and Cultural Bias of the Surveyor. The bias of the surveyor has an impact on the outcome. For example, educators tend to classify more of the population into the

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7From an interview with Gerhardt Saenger, Ph.D., Acting Director of the Mental Retardation Epidemiology Unit, New York State Department of Mental Hygiene.
category of subnormal, while the medical disciplines tend to classify mostly on an organic basis with a resulting lower rate.

The cultural bias of the surveyor can direct the outcome to some degree. This does not necessarily imply prejudice in the ethnic sense. However, several studies in the United States have shown a much greater degree of subnormality in areas where languages other than English are used. There is no doubt that there exists greater social deprivation for certain minorities which contributes to real functional retardation. However, prevalence rates for these minorities are also subtly affected by cultural bias.

In summary, the extent of subnormality in a community will be a function of the way the dysfunction is defined: by socio/economical conditions; by the level of demand placed on the individual by the community; by the degree of case finding through developed service agencies; by the age level surveyed; and by the criteria of identification.8

In the face of these difficulties, some basic prevalence determinants must be developed if a caseload for the model is to be estimated. With the following arbitrary assumptions and ground rules, usable figures can be developed from existing studies:

1. Only persons requiring a special service directly associated with mental retardation will be included in establishing a prevalence rate.

2. The I.Q. level of 67 and below will be used as the cutoff point.

3. Those who are not specifically identified as subnormal will not be a factor in the rate. In other words, if an individual is living in the community without special services or assistance, he will not be considered subnormal, regardless of his I.Q. or other dysfunctions.

4. Since there is little disagreement on the distribution of the relative degree of severity, these figures will be accepted:

<table>
<thead>
<tr>
<th>Degree of Retardation</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (67 to 52)</td>
<td>83</td>
</tr>
<tr>
<td>Moderate (51 to 36)</td>
<td>9</td>
</tr>
<tr>
<td>Severe (35 to 20)</td>
<td>5</td>
</tr>
<tr>
<td>Profound (20 to 0)</td>
<td>3</td>
</tr>
</tbody>
</table>

5. Retardation is to some degree, a matter of a lack of social adaptation. Therefore, the prevalence per 1000 in each category at a given age range will not be considered valid for all age groups.

Within these assumptions, a caseload factor for the 100,000 base population can be developed. In Figure 2-1, eight of the most widely accepted studies in the field are listed.

As can be seen, the deviation in the rate per 1000 for retarded with an I.Q. less than 51 is very small. The factors that affect

---

9Average of eight most accepted prevalence studies.
## FIGURE 2-1

Most Widely Accepted Mental Retardation Prevalence Studies

<table>
<thead>
<tr>
<th>Study By</th>
<th>Rate per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Than 51 I.Q.</td>
</tr>
<tr>
<td>New York State Department of Mental Hygiene, Onondaga County (1953)</td>
<td>3.5</td>
</tr>
<tr>
<td>Wessex, England - by Kishlick (1964)</td>
<td>3.5</td>
</tr>
<tr>
<td>Census of Severely Retarded Children in New York State (1956)</td>
<td>3.3</td>
</tr>
<tr>
<td>Aberdeen, Scotland - Study by Herbert G. Birch et al (1968)</td>
<td>3.7</td>
</tr>
<tr>
<td>Selford, England - Study by Susser and Kishlick (1961)</td>
<td>3.6</td>
</tr>
<tr>
<td>New York State Department of Mental Hygiene, Special Census of Manhattan (1970)</td>
<td>3.6</td>
</tr>
<tr>
<td>National Association for Retarded Children, Inc. (1963)</td>
<td>3.7</td>
</tr>
<tr>
<td>President’s Panel on Mental Retardation (1962)</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td>3.5</td>
</tr>
</tbody>
</table>

* N.R. - Not Reported
the outcome of surveys described earlier have a much greater impact on the mildly retarded category. Consequently, we might accept the 3.5 per 1000 for the more severely retarded with some comfort.

Figure 2-2 distributes the 29 per 1000 established in Figure 2-1 according to the percentages in assumption number four.

Those who work directly in the field of mental retardation tend to doubt the reported prevalence rates for the more mildly retarded. Interviews with these experts have revealed a consensus of opinion that such things as double counting, social bias, disciplinary bias and other questionable survey techniques tend to push this figure upward.

In a paper to be published sometime in 1973, Dr. George Tarjan, Program Director for Mental Retardation at Los Angeles Neuropsychiatric Institute, injects another element into the definition of retardation that has a profound effect on prevalence of mild retardation. Dr. Tarjan feels that for an individual to be regarded as retarded, he must have a similar impairment in adaptive behavior. Many retarded with relatively low I.Q.'s do not display this impairment. In addition, he agrees with the conclusion stated in this paper that many retarded are not identified in the pre-school and post-school periods. Dr. Tarjan also states that the high mortality rate among the more severely retarded tends to reduce the numbers in these categories.

Figure 2-3 distributes the number of retarded according to normal age distribution. It varies greatly from Dr. Tarjan's distribution in Figure 2-4.
FIGURE 2-2

Distribution by Degree of Severity
(From 100,000 Population Base)

<table>
<thead>
<tr>
<th>Category of Retardation</th>
<th>% of Total</th>
<th>Rate per 100,000</th>
<th>Number in 100,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (Special Education Only)</td>
<td>83%</td>
<td>24.0</td>
<td>2407</td>
</tr>
<tr>
<td>Moderate</td>
<td>9%</td>
<td>2.6</td>
<td>261</td>
</tr>
<tr>
<td>Severe</td>
<td>5%</td>
<td>1.5</td>
<td>145</td>
</tr>
<tr>
<td>Profound</td>
<td>3%</td>
<td>.9</td>
<td>87</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
<td>29.0</td>
<td>2900</td>
</tr>
</tbody>
</table>
FIGURE 2-3

Age Distribution of Retarded
(for a 100,000 Population Base)

From Figure 2-2

(Normal Distribution of Population by Age)

<table>
<thead>
<tr>
<th>Category</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25 +</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>313</td>
<td>570</td>
<td>192</td>
<td>1324</td>
<td>2407</td>
</tr>
<tr>
<td>Moderate</td>
<td>34</td>
<td>63</td>
<td>21</td>
<td>143</td>
<td>261</td>
</tr>
<tr>
<td>Severe</td>
<td>19</td>
<td>34</td>
<td>12</td>
<td>80</td>
<td>145</td>
</tr>
<tr>
<td>Profound</td>
<td>11</td>
<td>21</td>
<td>7</td>
<td>48</td>
<td>87</td>
</tr>
<tr>
<td>TOTAL</td>
<td>377</td>
<td>696</td>
<td>232</td>
<td>1595</td>
<td>2900</td>
</tr>
</tbody>
</table>
FIGURE 2-4

Age Distribution of Retarded
(for a 100,000 Population Base)
(Dr. G. Tarjan*)

<table>
<thead>
<tr>
<th>Category</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>25</td>
<td>600</td>
<td>25</td>
<td>100</td>
<td>750</td>
</tr>
<tr>
<td>Moderate</td>
<td>24</td>
<td>47</td>
<td>13</td>
<td>49</td>
<td>133</td>
</tr>
<tr>
<td>Severe</td>
<td>12</td>
<td>23</td>
<td>7</td>
<td>25</td>
<td>67</td>
</tr>
<tr>
<td>Profound</td>
<td>8</td>
<td>18</td>
<td>4</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>69</td>
<td>688</td>
<td>49</td>
<td>194</td>
<td>1000</td>
</tr>
</tbody>
</table>

* Adapted to fit four categories. Originally categorized into three levels of severity.
However, almost all of the difference in the two totals is contained in the "0-5" and "25+" age groups of the mild category. This can be directly attributed to Dr. Tarjan's thesis that this degree of retardation is almost entirely unidentified except during the school years. Since Dr. Tarjan's approach is consistent with assumptions three and four, this paper will maintain the estimates developed in Figure 2-2 but modify the "0-5", "20-24" and "25+" age groups for the mild category.

Dr. Gerhart Saenger, an epidemiological researcher for the New York State Department of Mental Hygiene, sees two fallacies in Dr. Tarjan's approach:

1. The absence of case finding in the "0-5" age category contributes to the caseload later. Therefore, the answer is not to ignore the problem but to identify it with greater effort in the area of diagnostic techniques.

2. That a substantial number of the cases identified at school age result from social deprivation and are not completely the results of social expectation.

The average of the two extremes will be used in the age groups "0-5" and "20-24". The Tarjan estimate for the "25+" will be accepted with the assumption that almost all of this group required no special support. In addition, the Tarjan estimate of age group "25+" for moderate, severe and profound will be substituted for the estimates in Figure 2-4.

Figure 2-5 displays the results of combining these two concepts of caseload.
FIGURE 2-5

Age Distribution of Retarded for a 100,000 Population Base

(Combination of Tarjan Estimates and Estimates Developed from Averages)

<table>
<thead>
<tr>
<th>Category</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25 +</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>169</td>
<td>578</td>
<td>109</td>
<td>100</td>
<td>956</td>
</tr>
<tr>
<td>Moderate</td>
<td>34</td>
<td>63</td>
<td>21</td>
<td>49</td>
<td>167</td>
</tr>
<tr>
<td>Severe</td>
<td>19</td>
<td>34</td>
<td>12</td>
<td>25</td>
<td>90</td>
</tr>
<tr>
<td>Profound</td>
<td>11</td>
<td>21</td>
<td>7</td>
<td>20</td>
<td>59</td>
</tr>
<tr>
<td>TOTAL</td>
<td>233</td>
<td>696</td>
<td>149</td>
<td>194</td>
<td>1,272</td>
</tr>
</tbody>
</table>
It should be remembered that these are caseload estimates, not true prevalence figures. If a group of children measure subnormal at six, substantial numbers of the group were unidentified cases in the 0-5 years. Also, the fact that this group is reabsorbed into the general population does not mitigate their subnormality. Since the objective here is the development of a caseload for our model, the numbers and distribution in Figure 2-5 will be accepted keeping in mind that the estimate in Figure 2-3 is probably closer to the true prevalence rate.

One last look at the age and severity distribution before moving on to a discussion of the services needed for each cell of the matrix in Figure 2-5.

If the distribution of all categories of retarded is plotted by age groups as shown in Figure 2-6, a curve with a steep rise in the adolescent years and a sharp fall-off thereafter results.

If we plot the same information for the profound category, a much flatter curve results despite the fact that the scale in Figure 2-7 is greatly enlarged.

These curves are a graphic display of the social definition of prevalence, a factor to keep in mind when organizing services for the retarded.
FIGURE 2-6

Age Distribution of Retarded

(All Categories)
FIGURE 2-7

Age Distribution of Retarded
(Profound)
Estimating the Service Need

There is a quote from Dr. John Cumming that is often used by those involved in treating the mentally ill. It has transferable application in determining services to the retarded:

"...it is surprising that values, which in the end must be the measuring rod against which any program is judged, are seldom made explicit....I shall try here, therefore, to make explicit....four value-laden statements of goals that might usefully stand at the core of an evaluation plan. They are: it is better to live outside a mental hospital than to live inside one; it is better to work productively than to be dependent on others; it is important to be effectively interdependent with others, and it is a good thing for people to be happy."

If we add two more value statements, the basis for recommended services for the caseload model will be developed. First, the mentally retarded have the same basic human rights as the total population. Second, the developmental capacity of the retarded has, in the past, been greatly underestimated. Based on these value statements, a set of services for the retarded can be constructed:

1. It should be arranged in such a way as to assure that the greatest number possible are served in non-institutional settings.

2. It should be geared to maximize the productivity and self-sufficiency of the individual.

3. It should foster socialization.

---

4. It should provide social, physical, psychological and educational settings that foster the happiness of the retarded individual.

5. It should ensure that the individual has the same opportunity for maximum development as the rest of the population.

Most of the systems serving the retarded are not predicated on these five goals. There has been a historical dependence on the large institution to warehouse this unwanted portion of our population. The institutional approach was based on a pessimistic view of the retarded's ability to develop self-sufficiency, his intellectual potential and his ability to socially adapt. The logical conclusion was to warehouse him in the most economic manner possible.

These positions have been gradually broken down by empirical researchers. They have discovered that there is a potential for development for almost all retarded, but an institution setting usually has an inverse impact on this development. A summary of the new approach to treatment of the retarded was offered in a statement of a commission for the reform of the Saskatchewan Mental Retardation Services:

There is an almost universal concensus among professionals in this field that with training, a stimulating environment and, especially, warm, friendly relations with other people, mentally retarded persons are able to live in a fashion much closer to normal than has previously been thought possible. Many, by the time they are adults, can be wholly or partly self-supporting as productive members of society.\footnote{\textit{Report on Services for the Mentally Retarded in Saskatchewan}, no author named (Regina, Saskatchewan, Canada, 1971), p. 3.}
For these reasons, the set of services to be recommended in this chapter and the organization of these services in the following chapter will be arranged in such a way as to increase the potential for non-institutional or community settings.

The kinds of services needed by the retarded are a clinical matter and a subject of well-established consensus and require only a brief description here. Also, since the range of services required for the retarded include all of the usual social services, only those specifically required to deal with the special problems of this group will be discussed.

Before determining the service requirements, a gross estimate of inpatient need by age groups and category will be made.

With a full range of community living arrangements available only a minimum of beds are required in an institutional setting. In the Report on Services for the Mentally Retarded in Saskatchewan, the Commission, through careful study, determined a need for only 700 inpatient places for a population of 1,000,000.12 This would mean only 70 beds for a population of 100,000. Of course, this would mean an uneconomically small institution, and a proliferation of facilities in states with large populations, but to estimate service needs this figure will be used.

Dr. Tarjan has calculated the relative expectancies for institutionalization by age and category. By using his figures, the 70 inpatients are distributed by age category in Figure 2-8.

12Ibid., p. 38.
FIGURE 2-8

Distribution of Inpatients by Category of Severity and Age

<table>
<thead>
<tr>
<th>Category</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25 +</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Moderate</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Severe</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Profound</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>23</td>
<td>15</td>
<td>8</td>
<td>70</td>
</tr>
</tbody>
</table>
These very gross estimates of need will be used in the categorical breakdown of services required:

(Mildly Retarded)

Age group (0-5): In Figure 2-5, it was established that only 169 mildly retarded were identified in this age group. When this same group entered the school years, the number leaped to 578. Two conclusions can be drawn from this. First, a significant number of mildly retarded go undetected; and, second, a substantial number become functionally retarded because of social deprivation.

Considerable education is required to insure early diagnosis of the mentally retarded. Early diagnosis should be a regular routine of those responsible for maternity care in a community. For those identified as retarded, preschool care for enrichment purposes should be provided.

As shown in Figure 2-8, only three per 100,000 can be expected to require institutionalization, and these will most likely be mildly retarded with accompanying physical handicaps or behavioral problems.

Age group (6-19): This group needs special education with a class size ratio not to exceed 10 students for each teacher. This service is very necessary if the desired falloff from 578 to 109 as shown in Figure 2-5 is to occur.

Once again, Figure 2-8 shows an expectation for 3 per 100,000 for institutionalization.
Age group (20-24 and 25+): There will be some mildly retarded people who will not be absorbed into the general population. This sub-group is composed mostly of those with organic disorders. They may need some kind of support after the school years. Support can usually be provided by the existing social or vocational structure of the community.

(Moderately Retarded)

All age groups: The preschool group will require public health nursing and homemaking service to assist and train parents. The school-age children will require special education classes in the public school system to provide training. With some effort, most from this group can become productive members of society within supervised settings. This requires sheltered workshops, social support and alternative living situations. Those with accompanying physical or behavioral problems may require institutionalization. Figure 2-8 estimates this inpatient workload as 13 individuals.

(Severely and Profoundly Retarded)

All age groups: Along with all of the support services required by the moderately retarded, this group will require activity centers for those adults who can never assume a vocational position in the community. Some of this group will also require institutional care.

Figures 2-9 distributes the basic services needed to serve the caseload generated by the model. This distribution is an extrapolation
of previously developed data, and is valid only as an estimating and planning tool.

The services identified in Figure 2-9 are those that are generally accepted in the field. However, to prepare the reader for the next chapter which deals with the organization of these services, a very brief description is in order. Only those services not self-descriptive in title will be defined.

1. Diagnosis and Identification: Unlike some other elements of the full range of services, the responsibility for diagnosis cannot be fixed at a single point. To some degree, the total range of social services must perform the task. For this reason, it is the most difficult element in the system to control.\(^{13}\) It involves the following:

a. Identification of organic symptom at birth.

b. Identification of socio-cultural deficiencies that could be the forerunner of functional retardation.

c. Identification of, and a willingness to recognize, learning deficiencies in preschool and school-age children that are severe enough to require special services.

d. Identification of behavioral problems associated with mental deficiency.

2. Family Counseling: The term "counseling" as used here means more than attaining emotional acceptance of the problem by the family. It also includes:
   a. Explanation of the diagnosis and its implication.
   b. Advice and training on maintaining a retarded child at home.
   c. Advocacy for needed social services.
   d. Assistance through crisis periods.

3. Public Health Nursing Service: This service is required to help those families desirous of maintaining a child at home who might ordinarily be placed in an institution. It should provide assistance and training in the physical care of the more seriously handicapped.

4. Homemaking Service: This very special service is designed to assist the parent in maintaining a disabled person in the home. There are two major categories. First, maid service to relieve the parent to care for the disabled. Second, service that trains and helps the parent to care for the disabled person.

5. Day Care: The term "day care" is a comprehensive concept. It includes such things as care in community preschool or nursery settings, special treatment programs at either a facility specifically designed for this activity, or as a special function of a residential facility. The mission of day care is to provide needed support for the retarded without institutionalization.
6. Community Living: A full range of living arrangements is required. Some of the more important are:

a. Family Care - private families are reimbursed to supervise and maintain patients in their own homes.

b. Hostels - separate facilities in the community for those who can support themselves with some assistance.

c. Halfway Houses - a transition stage from institution living to independent community living.

A model caseload and services requirement for a 100,000 population is complete. It would seem that rational decision-making could be measurably increased with this kind of data at hand. However, the term "model" implies simulation and cannot be accepted as reality. Before using the model, it should be tested with various available statistical techniques or even modified on the basis of intuition. But intuition should only be used after knowledge has been exhausted as a basis for decision-making.

The next step is to structure an organizational model of these services that will further assist in rational decisions. This will be the subject of the next chapter.
## FIGURE 2-9A

Estimate of Number and Type of Services Required to Serve 100,000 Population

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25 +</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic Services</td>
<td>169</td>
<td>578</td>
<td>0</td>
<td>0</td>
<td>747</td>
</tr>
<tr>
<td>Family Counseling</td>
<td>169</td>
<td>578</td>
<td>109</td>
<td>100</td>
<td>956</td>
</tr>
<tr>
<td>Public Health Nursing Service</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Homemaking Service</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Special Education</td>
<td>0</td>
<td>578</td>
<td>0</td>
<td>0</td>
<td>578</td>
</tr>
<tr>
<td>Pre-School Enrichment</td>
<td>169</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>169</td>
</tr>
<tr>
<td>Day Care</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sheltered Workshops</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Activity Centers</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Community Living</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Vocational Support</td>
<td>0</td>
<td>500</td>
<td>109</td>
<td>100</td>
<td>709</td>
</tr>
<tr>
<td>24-Hour Residential Care</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>
FIGURE 2-9B

Estimate of Number and Type of Services Required to Serve 100,000 Population

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic Services</td>
<td>34</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td>97</td>
</tr>
<tr>
<td>Family Counseling</td>
<td>34</td>
<td>63</td>
<td>21</td>
<td>30</td>
<td>148</td>
</tr>
<tr>
<td>Public Health Nursing Service</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Homemaking Service</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Special Education</td>
<td>0</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>Pre-School Enrichment</td>
<td>34</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>Day Care</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Sheltered Workshops</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>40</td>
<td>58</td>
</tr>
<tr>
<td>Activity Centers</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Community Living</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>Vocational Support</td>
<td>0</td>
<td>20</td>
<td>15</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>24-Hour Residential Care</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>13</td>
</tr>
</tbody>
</table>
**FIGURE 2-9C**

Estimate of Number and Type of Services Required to Serve 100,000 Population

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>0 - 5</th>
<th>6 - 19</th>
<th>20 - 24</th>
<th>25+</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td>Diagnostic Counseling</td>
<td>19</td>
<td>34</td>
<td>0</td>
<td>0</td>
<td>53</td>
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<tr>
<td>Family Counseling</td>
<td>19</td>
<td>34</td>
<td>12</td>
<td>25</td>
<td>90</td>
</tr>
<tr>
<td>Public Health Nursing Service</td>
<td>10</td>
<td>15</td>
<td>5</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Homemaking Service</td>
<td>10</td>
<td>40</td>
<td>5</td>
<td>10</td>
<td>65</td>
</tr>
<tr>
<td>Special Education</td>
<td>0</td>
<td>34</td>
<td>5</td>
<td>0</td>
<td>39</td>
</tr>
<tr>
<td>Pre-School Enrichment</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Day Care</td>
<td>0</td>
<td>12</td>
<td>8</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Sheltered Workshops</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Activity Centers</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>Community Living</td>
<td>6</td>
<td>25</td>
<td>10</td>
<td>11</td>
<td>52</td>
</tr>
<tr>
<td>Vocational Support</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>24-Hour Residential Care</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>21</td>
</tr>
</tbody>
</table>
**FIGURE 2-9D**

Estimate of Number and Type of Services

Required to Serve 100,000 Population

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>Profoundly Retarded</th>
<th>GRAND TOTAL (A+B+C+D)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 - 5</td>
<td>6 - 19</td>
</tr>
<tr>
<td>Diagnostic Services</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Family Counseling</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Public Health Nursing Service</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Homemaking Service</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Special Education</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pre-School Enrichment</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Day Care</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Sheltered Workshops</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Activity Centers</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Community Living</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Vocational Support</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24-Hour Residential Care</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>
CHAPTER III

AN ORGANIZATIONAL MODEL FOR RATIONAL DECISION-MAKING

IN THE DELIVERY OF MENTAL RETARDATION SERVICES

Problems in Mental Retardation as They Relate to Organization

There is some question as to whether public health administration is a body of knowledge distinguishable from administration in general. Most of the work in public health administration seems to be an examination of the principles of public administration in terms of public health problems. Even this examination is rather superficial. The most difficult problem seems to be ignored; the delivery of services to those who need it. This problem is not confined to the physical medicine branch of health. The delivery or distribution of services to the mentally disabled is probably ranked high among distribution resource failures in the United States.

In Administrative Behavior, Herbert Simon made a distinction between the "fact" and "value" aspects of decision-making. For sake of clarity, he categorized questions of value as the domain of the legislature and questions of fact as the concern of the administrator. At the same time, he recognized that fact and value decisions would often be intermingled.¹

Although Simon has been criticized for being simplistic in his definition of the respective roles of the elected and the administrative official, the concept is very valid for understanding

¹Simon, Administrative Behavior, p. 59.
the objective of public administration in carrying out the "value" decisions of the elected official in the most fact oriented (rational) manner possible. Most well trained, competent administrators are aware of Simon's "fact/value" distinction even when they are unable to live up to it. A natural outgrowth is a pyramidal form of organization with strong definition of authority in most public organizations.2

The "fact" role of public administration provides it with a bent toward efficiency stemming from accountability. Each level of the hierarchy is vested with more authority to shade "values" into the decisions. But, each level must answer to the next higher level for value oriented decisions. Public health systems have been developed around some basic value decisions of the medical profession, but they are not organized so that there is progressive upward review of these decisions.

The impact of this loosely woven, nonaccountable system has been discussed and will be examined further, but basically the absence of some principles of administration have had an adverse effect on rational decision-making in the delivery of health service.

This chapter will demonstrate how the application of principles of organizational theory may help in a field that can be described as undergoing a crisis.

It is fashionable for political scientists to talk of rights and, through a tortured chain of logic, prove their inalienability. The

source of these rights range from devine to contractual, but in most modern democratic political thought it boils down to a determination of the "public good." In many cases two rights will conflict in such a way that a choice must be made as to which should take precedent.

In the case of an individual's right to enjoy good health or the potential for reasonable development, there is no conflict. Certainly, if we were to expend exorbitant amounts from public funds to assure this right for an individual at the expense of others, we might have some basis for conflict. This is not the primary problem in public health systems. The resources are there and being expended, but somehow large segments of the population are denied even the most basic health care leading many to believe the problem lies in the lack of administrative techniques in the field.

It is particularly distressing to see what appears to be a basic right denied when there are no great opposing forces to overcome and no conflicting rights with which to deal.

There seem to be several problems inherent in the delivery of service to the mentally retarded:

1. Public Attitudes: In Chapter II there was discussion of the level of public knowledge and the public attitude. The long-standing and generally accepted pessimistic view of the development potential of the retarded has created an atmosphere that has denied resources to the problem. Until recently, states tended to expend much larger sums of money on the treatment of the mentally ill than the mentally retarded.
This is partially due to an unconscious cost/benefit approach of putting the money where it will do the most good. When public indignation focuses in on the poor quality of services to the retarded, there is a sudden increase in allocation to the program. This ebb and flow of support makes planning for systems of care an elusive objective.

A classic example of this disruptive kind of resource allocation can be found in New York State. In December, 1970, the New York revenue/expenditure balance, as in many other states at the time, became desperate. The problem was compounded by a very well organized taxpayer resistance to any tax increases. Subsequently, thousands of State employees were laid off with a hiring freeze placed on all departments.

Dr. Alan D. Miller, Commissioner of the Department of Mental Hygiene, took an unprecedented and courageous action when he wrote an open letter to all legislators describing, in a professional manner, what would happen if the hiring freeze were continued. He pleaded for additional support in the upcoming budget.

The wrath of the Legislature and the public came down on Dr. Miller. He was considered presumptuous for interfering in the Legislative process.

For several more months state schools for the retarded and the state hospitals struggled to survive with already inadequate and yet decreasing staff. Finally, in January of
1972, a sensationalistic news reporter from the American Broadcasting Company Television outlet in New York City shocked the public with an expose' of the deplorable conditions at Willowbrook State School on Staten Island in New York City.¹

Neither the State Executive nor the Legislature could resist the resulting public indignation, and an additional $32.5 million was made available for the new fiscal year which started April 1, 1972.²

These additional resources were dumped into the Department's budget with the directive that the problems be solved immediately so that public pressure on the Legislature and the Executive would let up. It is this kind of feast or famine response that makes planning for systems of service so difficult.

2. Professional Attitudes: Mental retardation has long been the stepchild of the treatment continuum for the mentally disabled. Too often, the programs for the mentally retarded have been forced into psychiatric models designed to treat the mentally ill.

3. The Lack of Visibility of the Problem: In Chapter II it was determined that only 3.5 per 100,000 were seriously mentally retarded; whereas, some studies show that nearly one person

³A series on TV Channel 7 in New York City in January, 1972.

⁴1972-73, State of New York State Purposes Appropriation Bill, April, 1972.
in eight at any one point in time is suffering from an emotional disorder. This is 12,500 of a 100,000 population. When the episodic nature of mental illness is considered, it can be seen that the problem is quite visible as compared to mental retardation.

4. Diffusion of Responsibility: Partly as a product of the above, there has been a lack of fixed responsibility. There are, however, other contributing factors. In Chapter II the generic term "mental retardation" was said to include a compound of social, physical and psychological factors. Consequently, by its very nature the problem becomes diffused.

Also contributing to this diffusion is the multi-level governmental responsibility. The September/October 1971 issue of Public Administration Review was devoted to the crisis in health care. In an introductory article, a statement concerning health care systems was offered:

The failure of our health institutions to deal adequately with the problems brought on by the growing and changing demand for their services is an outgrowth of certain basic characteristics of the health field. Mainly, it is a problem of the way services are structured in the U.S. The pattern is one of a multitude of separate specialized and autonomous agencies each focusing on limited concerns.


Although the author was discussing physical health services, the statement also applies to mental health services.

5. The Lack of Political Pressure: By the very nature of his handicap, the mentally retarded lacks the articulation and resources to turn his needs into political action. In addition, there has been a rather sanguine attitude and a tendency to accept the inadequate resources on the part of those who are spokesmen for the mentally retarded.

The objective of the organizational arrangements to be examined and recommended will be to overcome as many of these inherent problems as possible, while expediting services to the population as described in Chapter II.

Organization of Mental Retardation Services

The debate is endless; to centralize or regionalize, to functionally organize or to organize by process. Examination of any of these questions from a theoretical perspective is productive only in the learning process of the examination. Therefore, organizational relationships will be developed from the perspective of the model and the solution of the inherent problems cited earlier.

A review of some of the most recent studies on organizational theory and structure seems to show a very steady movement away from the work analysis approach toward a more behavioral model. The basis for organization design in these studies is not the assignment of functions
and the placement of authority but an analysis of how decisions and behavior are effected by the organization. This approach is probably best represented by Herbert Simon. In his second edition of *Administrative Behavior* he states:

> The term organization refers to the complex pattern of communications and other relations in a group of human beings. This pattern provides each member of the group much of the information, assumptions, goals and attitudes...a set of stable comprehensive expectations....The sociologist calls this pattern a 'role system;' to most of us it is more familiarly known as 'organization.'

It has been this behavioral approach to organization that has above and beyond the inherent problems, impeded efficient administration and delivery of mental health services. Those who are ultimately responsible for these services are, in most cases, men with behavioral science backgrounds; psychologists, psychiatrists, sociologists and the like. These disciplines tend to look at organization in the sociometric context. Consequently, in most local jurisdictions, responsibility is very diffused, and in many cases intentionally so.

Examination of organizational structures and relationships may require an understanding of how people relate to each other, but the construction of an abstract model must be based to a great degree on the still valid classical approach of Gulick and Urwick:

> It is clear from long experience in human affairs that such a structure of authority requires not only many men at work....but a single directing authority.

---

7 Simon. *Administrative Behavior*, p. XVI.

The concept described is unity of command. Proponents of the sociological approach have taken special notice of this axiom of traditional organizational theory. They hold this to be a self-contradictory concept. Herbert Simon, for example, deems the concept of unity of command to be impossible, because a man cannot obey two conflicting commands.\(^9\) Surely, it is not this kind of narrow interpretation that the traditionalist had in mind. For the sake of clarity, the concept of unity of command could be restated as follows:

At each point in the decision-making chain (organization) where priorities may conflict, there must be either a person or a process for resolving the conflict.

On the surface, this statement seems very much a truism, and it is hard to imagine anything but the most simple objectives being attained without compliance.

Figure 3-1 is a graphic representation of an arrangement of services for the mentally retarded at the county level, or the municipal level in larger cities. It is based on the New York State arrangement, but it is typical of services in many states.

In New York State, there are three rather fragile mechanisms for coordination of the services shown in Figure 3-1:

1. A regional office with no direct line authority over any of the elements of service. These offices try to encourage integration and development of programs with a more or less educational and counseling approach.

Typical Service Array

State Executive

State Dept. of Social Services
  County Welfare Dept.
    Welfare Support
      Family Care
        Family Counseling

State Dept. of Education Vocational Rehabilitation
  School System
    Special Education
      Vocational Support

County or City Government
  Mental Health Board
    Clinics
      Sheltered Workshops
        Activity Centers
          Various Community Support Programs

State Dept. of Health
  County Health Dept.
    Public Health Nursing
      Diagnostic Services

Dept. of Mental Hygiene
  State Schools
    Various Community Support
2. A funding mechanism, whereby the State Department of Mental Hygiene reimburses counties at 50% of their net expenditures in Mental Retardation services. In theory, to be reimbursed the counties must conform to a very broad set of priorities. In practice, the Department has very little authority to control the quantity or quality of county delivered services.

3. An outreach program, whereby the state institution serving the county, with program assistance from the central office, tries to encourage program development.

Max Weber claims that public administration is, "The means of carrying community action over into rational ordered societal action." The essence of public administration is a structured organizational pattern that encourages rational decision-making. It is very difficult to see how an arrangement as shown in Figure 3-1 could encourage rational decisions.

Here, the difficulty in achieving unity of command, as redefined, arises because there are three somewhat autonomous jurisdictions involved: state-provided services, locally operated services and services from private voluntary agencies. In addition, we have several different functional state and county departments involved.

An examination of Figure 3-1 reveals that there are two major categories of service; services specifically required because an

Counts of under 200,000 population are reimbursed at 75%.

individual is retarded and services required by the general population that are also required by the retarded.

In Chapter II it was determined that there were twelve basic services required specifically because an individual is retarded. Figure 3-2 indicates which of the three basic jurisdictions might provide these services; state, local or private.

Of the 36 possible entries in Figure 3-2, only two are not utilized: public nursing care is usually not provided by any jurisdiction other than local health departments. To these 34 components must be added those services that are not specifically for the retarded, but are usually required by them at a demand rate higher than by the general public. How can coordination of so many elements be insured by any organizational structure? This question has perplexed managers of these services for many years. It has prompted some in the field to describe the system of services as a "non-system."

Now that the problem has been outlined, some solutions will be offered.

In Chapter II, Figures 2-9A through 2-9D contain 192 separate cells with a caseload estimate. Each cell could be further subdivided in categories of provider or service. For example, we could have moderately retarded between the ages of 6-19 who need special education service. This service could be offered by any of the three major providers of services; state, local and private/voluntary. This gives a master matrix with nearly 600 distinguishable categories. Even this categorization is simplistic because it does not take into consideration...
<table>
<thead>
<tr>
<th>Category of Service</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State</td>
</tr>
<tr>
<td>Diagnostic Service</td>
<td>X</td>
</tr>
<tr>
<td>Family Counseling</td>
<td>X</td>
</tr>
<tr>
<td>Public Health Nursing</td>
<td></td>
</tr>
<tr>
<td>Homemaking Service</td>
<td>X</td>
</tr>
<tr>
<td>Special Education</td>
<td>X</td>
</tr>
<tr>
<td>Pre-School Enrichment</td>
<td>X</td>
</tr>
<tr>
<td>Daycare</td>
<td>X</td>
</tr>
<tr>
<td>Sheltered Workshops</td>
<td>X</td>
</tr>
<tr>
<td>Activity Centers</td>
<td>X</td>
</tr>
<tr>
<td>Community Living</td>
<td>X</td>
</tr>
<tr>
<td>Vocational Support</td>
<td>X</td>
</tr>
<tr>
<td>Residential Service</td>
<td>X</td>
</tr>
</tbody>
</table>
other important judgement characteristics, such as accompanying physical or behavioral handicaps.

If the problem were categorized into groups specific enough to satisfy practitioners in the field, there would be nearly as many cells in the matrix as individuals requiring service. Obviously, in using the Victor Thompson method of factoring goals to subgoals to construct the model, some arbitrary groupings must be made.12

In Chapter II the 192 cells in Figure 2-9A through 2-9D will be called units of services, since they overlap and cannot be regarded as a caseload. In other words, if an individual required several different kinds of service, he would be counted several times. When totalled, these cells add up to 4533 units of service. Of this total 3226 are required to support the mildly retarded, and the remaining 1307 service units are required by the more seriously handicapped.

Of the 3226 units of service required by the mildly retarded, some 3150 are in services usually provided by community agencies with general social responsibilities that are not specifically designed for the retarded. The distribution of these units is shown in Figure 3-3.

Although any of the 12 services listed in Figure 3-2 could be provided in the community, those listed in Figure 3-3 are those most likely to be offered locally because they are usually integrated with social, health and educational services for the general population.

A general thesis can be extrapolated from the distribution in Figure 3-3: Needed services generally fall into two major categories,

12Thompson, Modern Organizations, p. 15.
FIGURE 3-3

Locally Provided Unit of Service

(Mildly Retarded)

<table>
<thead>
<tr>
<th>Service</th>
<th>Provider Agency</th>
<th>Units of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic</td>
<td>School System</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Facilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health Department</td>
<td>747</td>
</tr>
<tr>
<td>Family Counseling</td>
<td>School System</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Services</td>
<td>956</td>
</tr>
<tr>
<td></td>
<td>Voluntary Agencies</td>
<td></td>
</tr>
<tr>
<td>Special Education and Pre-School</td>
<td>School System</td>
<td></td>
</tr>
<tr>
<td>Enrichment</td>
<td>Voluntary Agencies</td>
<td>747</td>
</tr>
<tr>
<td>Vocational Support</td>
<td>Social Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>School System</td>
<td>709</td>
</tr>
<tr>
<td></td>
<td>Voluntary Agencies</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>3,159</td>
</tr>
</tbody>
</table>
those which are usually provided by local jurisdictions in conjunction with other services for the less severely retarded, and those special services for the more seriously handicapped that can be provided by any jurisdiction but are more likely provided at the state level. This should be interpreted not as a statement of policy preference, but as a statement of fact. It has been established that as many services as possible should be provided by and in the community. However, even when the community focus of service is pursued actively, Figure 2-8 indicated that 70 per 100,000 would require 24-hour care. In many local governmental jurisdictions, this would be an uneconomically small number requiring this very special and intensive program. Consequently, some out-of-community care will be needed.

Some of the objectives of the organizational model have been accomplished. We have compartmentalized into manageable units:

1. Direct services provided by the locality, usually for the full range of degrees of handicap.

2. Indirect services provided in the locality by agencies with responsibility not specifically designed for the retarded. These services are usually for the less severely handicapped.

3. Direct services provided by the state, usually for the more severely handicapped.

The next major problem is establishing unity of command and coordinating responsibility for these three major categories of service. This is a very difficult task, since there are three relatively autonomous jurisdictions involved: state government, local government and voluntary agencies.
One of the serious misconceptions held by some organizational theorists is that unity of command can only be achieved by setting up a supervisory pyramid with a well defined chain of authority. There are other methods of establishing a structure that provides for coordinating responsibility and orderly upward referral.

One of the most effective is the budget approval device. The budget may serve as the basis for control, as well as an integrating and communicative mechanism. The use of budget systems will be examined more closely in the next chapter, the focus here will be its organizational relationship.

In most states the major portion of funds used to support retardation services come from the central state government. Some of the sources are:

1. State aid to local social services.
2. State aid to education.
3. State aid to county mental health operations.
4. Direct state services, such as state operated institutions and outreach programs from these institutions into the community.
5. State supported vocational rehabilitation programs.

At the risk of tampering with the principle of home rule, it would seem that appointment of a state regional director of retardation

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services could provide the unity of command needed to close the gaps in the system.

If authority for approval of the annual budget request were vested in this office, it would add greatly to the coordination of all programs.

In most states that fund retardation programs operated by local government, there is a requirement for a comprehensive plan. The local plan must contain a certain minimum range of services to be eligible for state funding. However, as pointed out earlier, there is such a proliferation of programs, jurisdictions and funding sources it is nearly impossible to insure the orderly provision of services.

In the State of New York, there are presently eight primary sources of funding for programs for the mentally retarded. They include the five already cited in addition to the following:

1. Funding from the local tax base.

2. Federal grants, primarily for the construction and staffing for community mental health centers.

3. Funding from private and voluntary agencies, such as The Association for Retarded Children.  

However, the proliferation of funding sources is not the basic difficulty. The real problem is the lack of a single point of coordination for these resources.

In summary, the components of the problem are:

1. Multi-jurisdictional responsibility.

2. A proliferation of uncoordinated funding sources.
3. Many uncoordinated services.
4. Many categories of individual need.

And, in summary, the abstract solutions offered are:
1. Quantification of the problem.
2. Compartmentalizing the goals into manageable units.
3. Achieving unity of command through a single regional coordinating office.
4. Insuring a full range of needed services through the use of the budget approval process.

Now a practical model will be outlined that applies to these abstract solutions to the problems.

Structuring a Model Organization for Mental Retardation Services

Perhaps the best way to structure the model for the delivery of mental retardation service to the hypothetical 100,000 population is through a narrative outline. Other processes will be combined with the model description to make the picture more clear.

1. A comprehensive plan of required services would be developed by the state agency responsible for retardation services.
2. A regional director would be appointed. He would be responsible for coordination of services in a county, a group of counties, or a municipality if large enough.\(^{15}\)

\(^{15}\)It is probable that this regional director would also have the same kind of responsibility for programs for the mentally ill and problems of alcoholism.
3. A caseload estimate would be developed. Either the survey technique could be used or a model could be constructed as outlined in Chapter II.

4. Units of cost would be developed for each of the required services. (See Chapter IV.)

5. A master plan would be developed for the region insuring movement toward provision of a full range of service as outlined in a state comprehensive plan.

6. The regional director would coordinate the various jurisdictions providing direct services and receiving state funds.

7. The budget of each jurisdiction would be combined into a single budget for the region and forwarded to the central state agency for retardation when the optimum range of services had been developed within the resources available.

8. The regional director would act as advocate for other services not directly funded by the central state agency, or not primarily concerned with mental retardation services.

Chapter IV will demonstrate how a budget system and the development of a cost unit system will support the organizational model.

Once the process is determined, the unmanageable organization chart in Figure 3-1 can be redesigned.

Since the principles of state and local government would not allow for a single director of retardation services cutting across function, department and government jurisdictions, the device of budget approval will be used.
Figure 3-4 achieves unity of command by development of three different relationships:

1. An advocacy relation with those programs that are needed by the retarded but are neither specifically designed for the retarded nor funded through the central state agency. An example might be to insure that no child is excluded from the school system because he is retarded.

2. A direct supervisory relationship with those services directly provided by the central state agency responsible for retardation services.

3. Program supervision of locally provided services specifically for the retarded through budget approval authority.

Before leaving the now developed organizational model, something should be said about the office of regional director. This office would be directed by an individual with an administrative background. Physician or public administrator, he should be able to administer systems of several kinds:

1. Data systems.

2. Information systems.

3. Budget systems.

4. Service systems.

5. Communication systems.

He must be forceful enough to hammer together various governmental jurisdictions into a single system of service. On the other hand, he must be able to coach cooperation out of those jurisdictions over which
FIGURE 3-4

Organization of Services

KEY

- Advocacy relation
- Budget approval relation
- Direct Supervision
he has no direct control. It would seem that a public administrator would be more likely to bring these qualifications to the job than an individual from almost any other discipline.

In this chapter, a model of organization for retardation services has been offered. The structure of this model is predicated on central control of the budget process within the hypothetical 100,000 population. In addition, this budget process is based on the existence of a well developed unit/cost system of the 12 services outlined in Chapter II.

Since these two tools of management are so important to the models they will be examined further in the next and last chapter. In addition, development of the model budget process will provide another opportunity to demonstrate how model construction can add rationality to decision-making.
CHAPTER IV
ADMINISTERING THE MODELS FOR RATIONAL DECISIONS

A Review of Some of the Tools and Techniques for Managing A System

We have identified some of the more pressing problem areas in mental health delivery systems to show that decision-making is difficult unless there is a dedicated effort to minimize those elements having negative impact on the rationality of the decision. Most of the solutions offered have been aimed at structuring a "systemness" to the various components of the services through the use of the model technique.

Solutions have been developed for such problems as:

1. Diffused goal responsibility.
2. Unclear lines of authority.
3. The lack of integration and the absence of decision-making data.

Two basic models have been developed thus far; a work-load model describing the kinds and number of units of service required to service a population, and an organizational model grouping the units of service into meaningful and manageable components. The next endeavor will be to construct a model of the two basic tools for managing the recommended system.
Management tools for administering a health system are basically the same as those used in any private or public operation. Some of the more important are:

1. Personnel administration techniques.
2. Systems and administrative analysis.
3. Program evaluation techniques.
4. Budget and accounting systems.
5. Cost analysis systems.
6. Integrated information systems.

The first three will not be discussed here since there are few significant differences in their application to management of health systems from their use in any other system. In addition, cost systems and information systems will be treated as a single subject because of their very close inter-relation.

Two management tools will be examined for their application for administering the models structured in Chapters II and III: budgeting and accounting systems and cost finding systems.

Budgeting as a Tool for Rational Decision-Making

One of the most reformed aspects of public administration is the budget process.

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1There are two other techniques that some might think should be included: Planning Programming Budgeting (PPBS) and Critical Path Analysis or PERT. PPBS is more or less a combination of budgeting and planning while PERT is a combination of items #2, #4, #5 and #6. Therefore, they will not be treated as distinct techniques or tools.
The reformers have moved the budget from an instrument of expenditure control to a vehicle of management efficiency through performance budgeting. And in the last few years the budget has become an instrument of policy and program planning.

Despite theoretical reform there has been little substantive change in public budgeting. Often, budgets give the appearance of being program or performance in nature when in reality they are not. The agency request is nicely categorized in program format and sometimes even legislative approval is in this format. However, expenditures made against this authorization are on line item and object of expenditure basis rather than purpose of expenditure.

A close look at the agency request will often show that only the requested improvement portion is in program format. The ongoing budget is line item. It is significant to note that the ongoing portion of most budget requests constitutes the major portion of operating funds, while the improvement portion is usually less than 5% of the total.

Many public budgets still are:

1. Incremental in format.
2. Line item in nature.
3. Object rather than program oriented.
4. Removed from the planning process.
5. Unintegrated with other data systems of the agency.

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The reasons for this are myriad, but some of the more important are:

- The incremental format allows review of only the requested increase. Most legislative bodies are so greatly understaffed with administrative personnel that this format is almost a necessity.

- Objects of expenditure are easier to control than the purpose of the expenditure. There is no special need for a reviewer to understand the goals of an agency to pass on the purchase of a bus. However, if the bus was part of a larger request for additional transportation for community mental retardation services some understanding of the program would be required.

- Budgeting systems are a reflection of social systems. The American mistrust of government encourages a budget system with emphasis on accountability.

- The complicated and detailed procedures of the public budgeting process, many times, excludes the program manager from preparation. Program planning is isolated from the budgeting process, and budget experts are left alone to juggle their figures.

- Legal requirements of budget format mandate categories that are incompatible with the way the agency thinks of its goals and objectives.

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All of this results in budgeting systems that are object-oriented, in a balance sheet format, and obsessed with efficiency while effectiveness is ignored. These budgeting systems take established priorities, established goals and established programs and measure them only against themselves.  

There is one other budgeting problem that is somewhat unique to social services in general and mental health services in particular.

It was established that one of the objectives of mental retardation systems of service was to encourage the provision of the needed services in and by the localities. To accomplish this, many states assist in the funding of these services.

New York State, for example, reimburses these activities at a rate of 50 percent or 75 percent, depending on the size of the local jurisdiction. The overall effect has been positive. Locally provided services have proliferated since the implementation of the Local Assistance legislation.

However, there has been some negative impact. It has encouraged local jurisdictions to provide services to the less difficult and less expensive to treat clients and to ship the "undesirables" off to a state-operated facility. The form of treatment is, many times, based on criteria other than what is best for the individual.

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5 State of New York, Mental Hygiene Law, Article II (1972-73).
This is an oversimplification of a very complex problem stated in graphic terms to focus on the problem and a possible solution.

One such solution has been offered in California. There, a mental health budgeting system that reimburses localities at a set rate regardless of where the individual is treated. The current rate is 90 percent state reimbursement and 10 percent community liability. This system of state/local funding is generally referred to as "unified funding."

Unified funding eliminates the financial advantages that might be gained by treating the individual outside of the community and adds rationality to the budget process. It must be part of the model budget process.

The budget process should, in theory, add rationality to the decision-making process. It should increase the understanding of the alternative choices by:

1. Quantifying the choices.
2. Restating and clarifying the goals.
3. Reducing decisions to understandable alternatives.
4. Allowing for greater acceptance of the ultimate priority choice by encouraging participation of all decision-makers in the final results.

None of these elements of rationality are accomplished under the system of budgeting that generally pervades the public sector.

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6State of California, Department of Mental Hygiene; Lanterman - Petris - Short Act: July, 1969.
- The object oriented budget does not quantify the elements of program choice, it quantifies things.
- Goals and objectives can be obscured by an incremental approach that deals only with improvement.
- Truly rational planning cannot occur when the planners are excluded from the budgetary process.

Structuring a Budgetary Model for Rational Decisions

Before building the model, certain assumptions must be made. They are:

1. The hypothetical 100,000 population has developed a caseload estimate based on the model in Chapter II.
2. A unit cost system has been developed for a measurable unit of service for all the 12 basic services outlined in Chapter II. (Cost determination will be discussed further in this chapter.)
3. A comprehensive plan of services has been developed for the population conforming to the central agency's minimum required services.
4. Services for the retarded are organized similar to the model in Chapter III.
5. A system of unified funding as described in this chapter is the basis for funding all mental retardation services.

Within these assumptions a model budget process can be described that overcomes the five negative characteristics of public budgeting described earlier in this chapter.
Since the model will use the incremental approach, some more should be said about this format.

The incremental approach to budgeting is not intrinsically irrational. Improper application of the incremental budget fosters non-rational decision making. This occurs when the budgetary process:

1. Provides for only program review of the increment of increase.
2. Does not encourage planning in the sense of reordered priorities.
3. Does not automatically reassess the goals and objectives of the organization.

Incremental movement toward a legislatively approved goal can be a very rational approach. Some even feel that this method of budgeting is more appropriate for the public sector. Charles Lindblom has stated many times in his writings that the incremental approach is best suited to the public sector. In the Public Administration Review he points out that the public administrator has less preoccupation with goals or objectives. He feels, as demonstrated earlier in this paper, that public goals are so difficult to determine that consensus on these goals is nearly impossible. Therefore, agencies should move from point to point in comprehensive units.\(^7\)

By using the service model developed in Chapter II, and accepting assumption #2, the incremental approach can be used without losing sight of the objectives by:

1. Determining the services required (12 basic services in Chapter II).

2. Determining the cost of the unit of service required.

3. Determining the units of services presently available.

4. Determining the additional service required.

5. Determining what portion of the required services should be requested; based on:
   a. Ability to implement new program.
   b. Availability of additional resources.
   c. Priorities as established by the central agency.

This is an incremental approach that adds rather than detracts from the rational process.

Figure 4-1 demonstrates how the data could be compiled.

This chart outlines a system that is incremental, but at the same time rational because it:

1. Allows for constant review of priorities and objectives by a simple comparison of columns of (b) and (f).

2. Quantifies the problem in terms of units of service and cost.

3. Encourages planning participation by graphically showing the contribution of each jurisdiction in columns (c), (d) and (e).

4. Requests funds in terms of the program or purpose rather than object of expenditure.

There is one problem cited earlier that has not been resolved. Many times state accounting laws require categorization that is concerned with the items of expenditure and not the programs.
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<thead>
<tr>
<th>SERVICE</th>
<th>UNITS PROVIDED</th>
<th>Diagnostic</th>
<th>Family Counseling</th>
<th>Public Health Nursing</th>
<th>Special Education</th>
<th>Pre-School Enrichment</th>
<th>Day Care</th>
<th>Sheltered Workshop</th>
<th>Activity Centers</th>
<th>Community Living</th>
<th>Vocational Support</th>
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<td>Units of Service Needed</td>
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<td>Cost of Service</td>
<td>(c)</td>
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<td>Private and State Vol.</td>
<td>(d)</td>
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<td>Total c+d+e</td>
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<td>State Share</td>
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<td>Local Share</td>
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This difficulty is easily overcome. There is no reason why each of the 12 services shown in Figure 4-1 could not be further subfactored into the objects of expenditure that comprise the total of the service. This could be done within whatever format is required to comply with a state accounting law and then accumulated into the service category.\footnote{By adding time frame elements a system of budgeting in this kind of program format can be used as the foundation for either critical path analysis or planning programming budgeting.}

Before closing this discussion of the techniques developed for managing the model, something should be said about unit cost analysis since so much of what has been done so far is contingent on this management tool.

Cost Finding as a Management Tool

In government there is a shuddering at the thought of cost analysis. Some standard rejoinders are:

- "You cannot express social values in terms of dollars."
- "Human happiness is measurable only on a nominal scale."
- "Once you start measuring a program in terms of cost, you run the risk of driving all programs to the lowest common denominator."

When these statements are applied in relation to cost analysis, it indicates a lack of understanding of the purpose and use of this very important tool.

Cost analysis systems can, and often do, accept the priority arrangements as they presently stand and simply break down the elements
of cost within the given program. Although they can be used to compare one program with another, they more often subdivide costs within a program. Confusion lies in a lack of differentiation between cost benefit analysis and cost determination.

In the late 1950's, some "operations research" theoreticians were talking of a cost/benefit analysis system that would provide the ultimate in rationality for the division of resources. These experts further extrapolated that when the open marketplace of the free enterprise system failed to allocate resources to the general "public good" government must step in.

The device offered to replace open competition for scarce resources was a highly developed cost/benefit system. This system has since been discredited by a long series of failures. In the process it has discredited very useful cost determination techniques. As a result, a skeptical view of the utility of all cost systems has pervaded management. This view is well represented by Curtis McLaughlin, a widely accepted expert in health systems management, when he states:

The problems of applying the benefit-cost ratio, however, have proved virtually insurmountable in health.9

McLaughlin's conclusion concerning cost/benefit analysis is inappropriately extended to all cost determination techniques by many health program managers.

Since cost data is the basis for the recommended budget system, and the budget system is the basis for achieving cohesive responsibility in the organization model, cost data is central to rational decision-making. It is a method of allocating and reallocating cost from a point of data collection into different sets or subsets of costs. It charges all relevant costs, both direct and indirect, to the ultimate producing functions.  

The 12 required services would be broken down into some kind of unit measurement such as: one day of class in special education or one visit by a public health nurse. By a process called "step down," all contributing costs would then be accumulated into the category of service.

There are many sources of information on cost determination techniques and they need no further discussion here. However, it is absolutely essential that any systems based on the models in this paper implement a cost finding program if rational decisions are to be the end products.

A Model of Unit Cost and Budget for Rational Decision-Making

In the opinion of this writer, Alan Steiss's Public Budgeting and Management is one of the most comprehensive and insightful works on the subject. In this book, he states:


The primary goal of program budgeting is to secure a more rational basis for decision-making by providing data on cost of alternatives and measurement of output.

If Steiss's definition is accepted, the budget process and unit cost systems must be combined to make the models developed in this paper complete.

Figure 4-2 schematically displays how these two systems interrelate with the caseload and organization models.

The 12 service caseload from Chapter II is broken into units of cost and becomes a basis for both the regional master plan and the annual budget request.

The reader should refer back to the eight steps of the narrative outline and Figure 3-4 in Chapter III to fully understand the integration of Figure 4-2 with the organizational model.

Cost finding is central to rational decision-making systems because:

1. Budgeting by program or activity is intrinsically more rational than budgeting by object or line item.

2. The cost of programs or activities cannot be determined from a pricelist, but must be an accumulation of contributing costs through cost finding techniques.

3. The basis for the recommended organization is the 12 services that are program in nature.

4. Rationality is achieved in the recommended organization through unity of command gained by budget approval authority vested in the regional director.
FIGURE 4-2

Task Flow Coordinated Services

State Required Minimum Services

Case Load

Units of Cost

Services to Retarded

Community Master Plan of Long Range Budget

Local and Voluntary Funds

Annual Budget

State and Federal Funds

Central Agency Approved Budget

State Provided Services

Locally Provided Services

Private/Voluntary Services
Rational Decisions and the Use of Models--A Summary

Too often in public administration research an author will proclaim that he is about to build a model to aid in rational decision-making, and then proceeds to unfold an esoteric dissertation that has only indirect application to the real world. Although these works add substantially to the body of knowledge in administration, they are often too abstract for the practitioner. Consequently, the administrator is left with the Lindblom choice of "muddling through."

The recent movement of the public health field toward the provision of comprehensive services provided on a geographic basis has left many of its managers dismayed. There are so many unanswered questions:

1. What is the need?
2. What are the resources?
3. Who should provide the service?
4. How are gaps in service avoided?
5. How are overlaps in service avoided?
6. How should priorities be ordered?
7. How should services be organized?

The program manager becomes so confounded with these and other questions that he becomes reactive rather than activating. His constituents quickly sense this reactive rather than rational decision process and the result is a clamoring for attention. This can engender nothing but chaos in the planning process.
For some time, many in the health field have foreseen rationality being achieved through Federal action. Funding bills, such as Medicare and Medicaid (Titles XVII and XIX) were supposed to transform present health service into a cohesive and rational system. As late as 1968 an article in the Milbank Memorial Fund Quarterly proclaimed:

The rationalization of medical care arrangements can be expected to evolve in a variety of patterns in different localities, as a result of a kind of pincer operation, with Federal action—funds and guidelines—comprising one set of forces, and local initiative, within and outside the medical establishment the other. Together they will gradually shape into more rational systems the fragmented resources and unsatisfactory arrangements that now characterize medical care.\(^{12}\)

It has not happened in either health or mental health services, and there are no encouraging signs on the horizon. The states must take action to bring together the myriad of inefficient services through regionalization with unified direction. The arrangements offered in this paper are only one way. There are probably other and maybe better ways.

Other models must be examined, but it is the thesis of this paper than an abstraction of the real world in the form of a model can help achieve greater understanding in the face of complexities.

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