

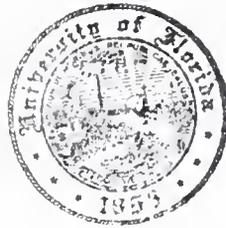
A PLANNING PROGRAMMING BUDGETING SYSTEM  
FOR A UNIVERSITY STUDENT HEALTH SERVICE

By  
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*Dedicated to Dott*

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Abstract of Dissertation Presented to the Graduate Council  
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A PLANNING PROGRAMMING BUDGETING SYSTEM FOR A  
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By

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A more effective means of allocating scarce resources to organizations supported by public funds is necessary. One management tool which has been employed for such purposes is a planning-programming-budgeting system (PPBS).

The problem in this exploratory research is to determine what relationships exist between budgeting incrementally and budgeting under the PPBS concept in the case of a particular university student health service.

First, the literature was searched to identify a conceptual framework of PPBS and to study the development and nature of university student health services. Also an investigation of the University of Florida Student Health Service (SHS) was accomplished by following the guidelines of a field study. Data were gathered through unstructured interviewing, by observation, from documentary materials

and through participation in the activities of an interdisciplinary task force formed to implement PPBS in the SHS; and a model was developed by appropriately relating this information. Cost-benefit analysis is an important part of PPBS; therefore, the literature regarding the benefit side of the analysis is discussed.

Findings emanate from the study and conclusions are drawn. There was generally a lack of qualified, experienced personnel, and implementation of PPBS was attempted too quickly and on too broad a scale. Strong leadership and understanding of the potential value of the PPBS approach are prerequisites for success although initial acceptance stems from the value of PPBS as a vehicle for justifying requirements rather than as an effective internal management tool. The Director of the SHS was a strong leader, and PPBS seemed to enhance his control. He could observe more accurately the cost of programs, had an opinion on the degree of program effectiveness and could judge whether the benefit was worth the cost.

Planning for and implementing PPBS by the interdisciplinary task force formed in the SHS seemed more progressive and imaginative than accomplishments by largely administrative groups. PPBS required the SHS staff to evaluate their activities and to set future objectives. Communications between administrative levels of the SHS and the parent

Health Center were not smooth and this caused unnecessary work and obstacles for SHS personnel.

Finally, recommendations were made. Responsibility for initial implementation of PPBS should not be divided. Additional personnel qualified in PPBS concepts and principles should be recruited or available personnel trained.

A method of evaluating the effectiveness of the programs of the SHS and the utilization of its facilities should be developed in order to provide benefit measures necessary for cost-benefit analyses. A possible approach would be to combine information from interviews designed to reveal health habits of students with more precise physiological data from polyphasic health testing.

Legislators should be familiarized with the concepts and principles of PPBS. If this is not done, PPBS will fail of its intended purposes.

The problem of determining benefits has been discussed; however, cost analysis, although treated briefly, requires further research.

## CHAPTER I

### INTRODUCTION

A planning-programming-budgeting system (PPBS) attempts to link forward planning to budgeting through programming and to provide information which will help the manager to make resource allocation decisions. The first task in implementing PPBS is to identify objectives of the organization and to group required activities into programs which will accomplish these objectives. Wherever practicable, alternative means of accomplishing objectives are specified and costs and benefits associated with each alternative are systematically compared. The desired course of action is normally chosen according to objective criteria which have been selected; however, the decision is the responsibility of the appropriate decision-maker. PPBS emphasizes the output of a program whereas traditional budgeting stresses inputs or objects of expenditure. Future costs and benefits are estimated and considered in the systematic analyses of alternatives. The future is also reflected in the program and financial plan which is a multiyear budget divided according to program categories, subcategories and program elements. Schultze (1968, pp. 26-27) describes this plan as a

"tabular record of an agency's proposed activities, measured in both physical and financial terms and grouped by output-oriented categories."

Terminologically, PPBS is relatively new but many of the concepts of which it is comprised are not (Novick, 1966, p. 1). The establishment of the process in the Department of Defense by Secretary McNamara in 1961 provided considerable publicity; but President Johnson's directive of August, 1965, which instructed other major agencies in the Federal Government to establish PPBS and use the Defense Department model as a general guide, provided a very important impetus to widespread implementation of the process in the public sector. Even with such impressive support, however, there still exists confusion and a general lack of understanding of PPBS, significant terminological trouble, and overstatement of potential and progress challenged by repeated reviews of limitations.

The confusion and lack of understanding are not surprising. Enthoven (1967, p. 2) apparently equates systems analysis with PPBS. Novick (1969, p. 60) equates program budgeting with "the planning-programming-budgeting systems abbreviated to PPB." Hitch (1967, pp. 10-11) provides some clarity by explaining that PPBS is embraced by two management techniques which are program

budgeting and systems analysis. Confusion returns, however, when he mentions that "program budgeting" is sometimes shortened to "programming" and "systems analysis" is replaced by such terms as "cost-effectiveness analysis," "cost-benefit analysis," "operations" and "operations research." McKean (1968, p. 135) maintains that "cost-effectiveness analysis," "systems analysis," "operations research" and "economic analysis" are simply terms used for different applications of cost-benefit analysis, which he describes as estimates of certain costs and benefits associated with various alternative courses of action.

On the other hand, some authorities attach different meanings to such terms as PPBS. Churchman (1968, p. 81) admits his frustration with the matter and explains that various writers allow their backgrounds to affect their definitions. Another likens the confusion surrounding PPBS with the fable of the blind men and the elephant and believes the trouble results from individuals concentrating on various aspects of the process (W. A. Carlson, 1969, p. 2). Escarraz (1968) discusses still other diverse views of the subject.

It has been clearly recognized, even by proponents of PPBS, that overstatements of potential have too often accompanied discussions of PPBS and perhaps the establishment of the process in the Federal Government. President Johnson advised that through PPBS we will have the ability to

Identify our national goals with greater precision.

Determine which of these goals are the most urgent.

Develop and analyze alternative means of reaching these goals most effectively.

Inform ourselves accurately of the probable costs of our programs.

Improve the performance of the Federal Government to insure the American taxpayer a dollar's worth of service for each dollar spent. (Johnson, 1967a, p. 3)

The primary critics of PPBS who strongly emphasize limitations and other shortcomings are authorities from the political science and public administration areas. Also, it is no secret that members of Congress do not support all aspects of PPBS (U. S. Congress, 1968b, p. 5). Most of these individuals are strong proponents of the political decision-making process.

J. W. Carlson (1969) reports on the progress and prospects of PPBS in the Federal Government and discusses some limitations and achievements which have become apparent since the establishment of PPBS in 1965. Basically, he believes that the ideal has not been accomplished through PPBS; however, when compared with accomplishments during the pre-PPBS period, progress has been significant. His closing remarks clearly indicate that capability at the state and local levels to implement the PPBS approach is

becoming very essential. For all practical purposes, \$26 billion of federal expenditures were administered by state and local governments in the fiscal year 1970 (J. W. Carlson, 1969, p. 634).

In 1967, the State Legislature of Florida created the Florida Office of State Planning (Chapter 23, Part 1, 1967 Florida Statutes). Although it was not explicitly stated that this organization would implement PPBS in state government in Florida, the terminology used implied such responsibility and it was so interpreted. Realizing that the state's public institutions, including the University of Florida, might soon be formally directed to employ PPBS techniques, several organizations at the university, in the second half of 1969, expressed an interest in commencing appropriate investigations concerning the PPBS process. One of these organizations was the Student Health Service. There are many organizations within the University of Florida which are similar in nature and have comparable objectives; however, the Student Health Service is particularly unique and implementing PPBS in this organization presents a definite challenge. One aspect of the challenge is the current state of health services in general. As former Secretary of Health, Education and Welfare, Wilbur Cohen, said, "there is no real orderly system in the United States today for determining the optimum location, size and use of health facilities" (1968, p. 486).

A system also seems to be lacking in the operation of most student health services. This is not to say that all should be alike, because as universities and colleges vary in size, financial condition, and other aspects, their objectives and programs probably should differ. Nevertheless, there would seem to be many systems that are pertinent to student health services.

The Committee for Management Systems of the American College Health Association was appointed in 1969 and is already attempting to develop a uniform cost reporting system which could result in very useful comparative data from participating student health services throughout the country (Averill, 1970). If a standard of measuring program output effectiveness could be developed, it should be possible to perform cost-benefit analysis. This type of analysis is, of course, a key element in PPBS. Measuring costs can be difficult, but measuring output effectiveness—or even accurately defining the output of a particular program—is extremely challenging in the health field. The problems of output definition and measurement and the question of standardizing measures of quality of output so that there can be useful product comparisons have been of recent concern to some very competent economists (Somers and Somers, 1967, p. 35).

There are other problems and characteristics of student health services whose effects on the implementation of PPBS are pertinent but are not so obvious. For example, programs or emphasis placed on programs might differ from other health organizations, because health problems of the college student usually do not include diseases of infancy and degenerative diseases; however, emotional problems of maturation and adolescence can be very important (Farnsworth, 1964, p. 16). Unfortunately many university administrations believe their concern should be directed toward providing education and not promoting or maintaining student health, except for emergency care (Ginsburg, 1955, p. 8). Summerskill (1955, p. 71) found that policies of colleges toward responsibility for students' emotional and physical welfare include noninvolvement in nonacademic affairs of the student, token programs of involvement and serious regard for students' total welfare. Apparently a very important factor in the student health service operation is this particular aspect of the philosophy of the university administration. A related question of much significance concerns the most effective way organizationally for a director of a student health service to relate to the university administration (Farnsworth, 1964, pp. 9-10). Also a point of discussion is the maintenance of confidentiality of medical information about students.

Expectations of members of the university community who do not appreciate the full impact of the legal, moral and ethical obligations of the physician to maintain such confidence causes some to question whether medicine can be practiced in a university student health service as if the service were a detached medical facility and not part of a university (Coggins, 1970a). As noted previously these latter problems and characteristics of student health services have a more indirect effect than other problems on PPBS implementation; nevertheless, their presence enhances the challenge of the overall problem.

*The Nature and Importance of the Problem*

The specific problem which will be investigated in this research project will be to determine what, if any, relationships exist between budgeting traditionally (incrementally or decrementally) and budgeting within the conceptual framework of a planning-programming-budgeting system in the case of a particular university student health service. This investigation will, of course, require the development of a model which will include all or some of such elements as program structure, objectives, measures of accomplishment of objectives (output measures), program memoranda, special analytic studies and program and financial plans. Typically, these have proved to be formidable tasks.

Although the Department of Health, Education and Welfare has prepared a number of program analyses related to health, there is little discussion or specificity about the programs themselves or representation of sequential relationships (Gross, 1969, p. 135). With regard to student health services, apparently no models of consequence have been developed; therefore, it is hoped that the product of this investigation will help fill a large research gap. The Chairman of the Committee for Management Systems Development, American College Health Association, when queried concerning attempts to adapt the PPBS model to student health services, replied: "A few scattered attempts have been made at other health centers, but they have been at best primitive and cannot be considered to be functioning in the true sense that the PPB system was intended" (Averill, 1970).

Since it is planned that the State of Florida will commence changing to PPBS in fiscal year 1971, the timing of the project, as far as gaining maximum, immediate benefit is concerned, is excellent. However, the local situation and the problem as originally stated are part of a larger problem which seems to be prevalent throughout the country.

It has been evident for some time that many universities supported primarily by public funds are experiencing increasingly more difficulty in acquiring the resources

which university officials believe are adequate to provide quality education and services (including medical service). Reasons for these difficulties in attaining needed funds are varied; however, important competing programs such as welfare and highways, as well as higher taxes and unusually high rates of inflation experienced in recent years, particularly in 1969, are cited (Maxie, 1969, p. 33).

There are some persons familiar with the situation who believe that past methods used by "institutions" to gain necessary resources will not suffice in today's environment. Hitch (1967, p. 16) who moved as Assistant Secretary of Defense, Comptroller, under McNamara to Chancellor of the University of California, believes such institutions as armies, navies, universities and hospitals are ready for some management techniques which will induce some efficiency. According to Hitch, generals, admirals, educators, doctors and hospital administrators do not believe that dollars matter because "national security" or "quality of the next generation" or "life" is at stake. Hitch believes that these programs are important but that dollars do matter and that rules of economy and efficiency should be followed to achieve as much as possible from scarce resources. Many legislators appear to be taking a similar view although they may tend to make decisions on many occasions in the political decision-making process

with only secondary attention given to economy and efficiency. If PPBS will assist in establishing a decision-making process which will suggest ways of allocating scarce resources more effectively, then this information should be known. Hopefully, this investigation will contribute to a better decision-making process.

### *Methodology*

This research is an exploratory study and consists of the following phases.

First, a thorough search of the literature was accomplished to identify a conceptual framework of PPBS, including methods and formats which could be used to indicate possible applications of PPBS to a specific university student health service.

Second, a study of the development and nature of student health services in general was accomplished by examining the literature; and a careful investigation of the development, rationale and operation of the University of Florida Student Health Service in particular was completed by generally following the guidelines of a field study. Data were gathered primarily through unstructured interviewing, by observation, from documentary materials and through participation in the activities of a task force formed by the Director of the Student Health Service in 1969 "to begin

organized planning for two purposes. The first, is to use the techniques of systems analysis as an aid in acting on long range goals of the Student Health Service. The second, is to use the above data to support the planning and design for a new building for student health" (Coggins, 1969, p. 1).

In large measure, the first and second phases were performed concurrently.

Third, a PPBS model was developed by appropriately relating the information gained in the first two phases. The objective of this model is to provide the bases for analyses from which information can be gained which assists in decision-making at the Student Health Service, particularly in the area of resource allocation.

Fourth, comparisons will be presented of data from a program and financial plan for the Student Health Service with data developed by traditional budgeting methods to determine what, if any, relationships exist between elements of the program and financial plan and the traditional budget.

Fifth, conclusions are drawn concerning pertinent relationships between PPBS and traditional budgeting and the potential utility of the model in the student health service setting.

Finally, appropriate recommendations are made.

*Sources of Data*

A few scattered attempts at application of PPBS to university student health services have been made but with relatively little success (Averill, 1970). Quantities of PPBS literature have emanated from RAND Corporation and some of this was used to assist in establishing a conceptual framework of PPBS concepts of cost analysis and techniques for measuring benefits. Otherwise, much of the literature from RAND deals with PPBS related particularly to Defense Department problems. There is considerable additional literature which deals primarily with PPBS concepts, potentials and limitations. Although not dealing with health problems in particular, some of this literature is general enough, or situations in other areas of interest are similar enough, that it could be used. There is some literature available which deals with the economics of health, health costs, measuring various aspects of health care, especially benefits, which has been used for background material as well as a source of quantitative data where possible.

A principal source of data was government publications, particularly those from Congressional committees which have recently investigated PPBS in the Federal, state, and local governments and those that have delved into American health care problems. Also there has

been useful guidance published by the Bureau of the Budget for use by the various federal agencies which is appropriate for this research since the State of Florida planning authorities appear to be following this guidance in a general way. The Department of Health, Education and Welfare has published several program analyses of various diseases as well as specific guidance to their several agencies concerning the implementation of PPBS in the Department. This information proved particularly useful.

As suggested earlier, a major portion of the data was developed from a field study at the University of Florida Student Health Service. The data were collected through unstructured interviews, observation and analysis of documentary materials.

### *Scope and Limitations*

#### *Scope*

This research includes the development of a model and analysis of selected aspects of the model, both of which relate to the student population at the University of Florida. The stated trends of college health programs are changing to include (1) episodic health care for students' dependents, faculty and staff, as well as environmental surveillance and health promotion and (2) the coordination of the college health activities with activities and health

resources outside the college community such as local, state, federal, public and voluntary health programs and resources (Gage, 1969, p. 1). There is no argument with the inclusion of the additional segments of the population or the extramural activities; however, the critical feature lacking is that there has been little analysis of the kind required by PPBS performed on any aspect of student health activities. It is hoped that by analyzing the smaller population initially, the model can be expanded later to include the additional elements, and analysis will be more effective than if the entire problem were approached in this investigation. This seems especially true since the trends mentioned still appear to be in the conceptual stage in many instances.

The model and analysis include interrelationships which exist within the student health service. Interrelationships between activities within the student health service and outside are discussed and represented in the model; however, a thorough study of such "outside" inter-related activities is not an objective of this investigation.

#### *Limitations*

Limitations associated with PPBS are numerous and will be discussed in more detail later; however, limitations of primary importance to this investigation concern the

development of the program structure, measurement of total costs and effectiveness of various student health activities and programs and the selection of appropriate criteria (McKean, 1968, pp. 131-135; Hitch and McKean, 1960, pp. 158-177).

These limitations, of course, derive from a number of causes. There probably is not one program structure that is unquestionably the best. For example, particular activities may take place in more than one program and, therefore, may be placed in different programs. Changing the program structure when deemed necessary does no great violence to the PPBS approach, however.

Allocating costs to various elements of a particular program or to various programs generally includes a certain amount of arbitrariness and, therefore, impreciseness. Measuring effectiveness of these elements and programs is usually even more difficult. The latter problem may occur because objectives stated have been very vague at best, or inaccurate or nonexistent at worst. Also, the qualitative nature of health care makes the development of precise measurements of effectiveness formidable. Establishing appropriate criteria is similarly arduous because of the qualitative nature of health; however, there has been little need for criteria because of an apparent lack of incentive to develop alternative courses of action.

Somers and Somers (1967, p. 5) mention that data concerning the health field are fragmentary and dispersed among institutional sources which are not well known. They also note that characteristics of the health field make economic analysis very difficult. For example, institutions which represent a major portion of the supply of health services are noncompetitive, nonprofit institutions; price has a relatively minor part in the determination of the demand for and distribution of health care; and consumer choice also plays a relatively minor part "in a field where the consumer is a reluctant buyer, the financing is often through third party instrumentalities, and the consumer typically lacks the knowledge, confidence, or any practical mechanism for exercising meaningful decision as to the character, quality, or quantity of services to be rendered" (1967, p. 5).

With respect to the trouble associated with the development of precise measurements, Enthoven's counsel is followed. He states, "We try to measure those things that are measurable, and insofar as possible, to define those things that are not, leaving to the responsible decision-makers the job of making the difficult judgments about the imponderables" (Enthoven, 1967, p. 9). Realistic proponents of PPBS make no claim that it will produce decisions. Enthoven (1969, p. 902) also points out that his experience

has been that criteria are usually very crude initially and not very satisfying but serve as a useful and necessary starting point for the development of more satisfactory criteria.

### *Results*

Although a PPBS model has been developed which represents a specific university student health service, it is hoped that the model can serve as a prototype for other university student health services. In all cases, the purpose of the model is to provide more and better information to the decision-maker which will assist him in making more effective decisions concerning long-range planning and the allocation of scarce resources.

In attempting to determine what, if any relationships exist between budgeting traditionally and budgeting within the conceptual framework of PPBS, a conversion matrix or "crosswalk" has been constructed. This is a means of translating from a program budget to the traditional budget or appropriation/budget structure and is necessary during periods when both methods of budgeting are being used. This is currently the situation in the Federal Government.

The yardsticks for measuring costs and benefits of the several programs as well as the criteria which are selected are rather crude in many cases; however, it is

intended that they will activate argument which will result in the development of more precise measures and serve as a point of departure in the further development of more refined criteria.

In some cases, appropriate output measures may be determined but necessary data are unavailable. In such situations, procedures are suggested to commence the collection of the necessary information. The PPBS effort should not stop because of the lack of desired data but should continue with less desirable measures with knowledge of the weakness and also that under the circumstances a crude measure is probably better than no measure at all.

#### *Related Research and Literature*

During the sixties, while PPBS increased in use and popularity in some areas, neither results of research nor other types of literature were produced which discussed the operation of university student health services according to the concepts of PPBS. Even current, general literature about the nature of the operation of a student health service is relatively sparse.

*The Journal of the American College Health Association*, where information is exchanged about medical practice in university student health services, recently published a revision of *Recommended Standards and Practices for a College Health Program* with a supplement, "Ethical and Professional

Relationships" (October, 1969). This publication represents a very substantial effort and helps in the formulation of objectives of individual student health services; nevertheless, little guidance was provided on the method of measuring the accomplishment of the objectives cited. Terminology included planning, programming, budgeting, programs and program objectives; however, the use of PPBS or concepts and rationale related to it was not suggested.

Generally, there is not much evidence that PPBS has been installed in many of the country's medical facilities. Nevertheless, there does seem to be useful information available, although some applies to specific parts of PPBS, e.g., the measure of program effectiveness.

Opponents of PPBS such as Wildavsky (1966, 1969), Mosher (1967, 1969) and Lindblom (1959, 1961, 1963 with Braybrooke, 1965) seem to be primarily concerned with the possibility that PPBS proponents are attempting to replace the political decision-making process. Also Mosher (1969, p. 161) has pointed out that PPBS is not as well suited for some types of organizations as for others.

Schultze (1968) has addressed the first concern effectively in his attempt to synthesize the political approach to decision-making and the analytic approach suggested by PPBS. Schultze believes that the PPBS analyst is naive if he ignores political constraints and thinks that

"efficiency alone produces virtue" just as he believes that a decision-maker cannot ignore resource constraints and think that "virtue alone produces efficiency" (1968, pp. 75-76).

With respect to the second concern, Hitch (1967, p. 16) agrees that PPBS may be implemented with varying degrees of effectiveness but points out the danger of discrediting the entire concept of PPBS if attempts are made to move "too far too fast." He believes it can be useful in most situations and specifically points out the potential in the health field, as does Enthoven (1967, p. 9). Novick (1969, pp. 63-64) expands implementation suggestions and provides more detailed recommendations for two alternative courses of action. One of the alternatives would aim for implementation of PPBS in 18 months to two years. The other suggested course of action assumes the positive value of the PPBS concept and includes specific instructions related to taking some "great leaps" and putting PPBS into effect in the current planning and budget cycle.

In 1965, the Department of Health, Education and Welfare (HEW) was directed to implement PPBS, and Rivlin (1969) describes what occurred during a three-year period after implementation and suggests some valuable lessons that were learned. Of particular interest is her description of two types of program evaluation followed. One is roughly a

pass-fail process which is performed for Congress, while the other tries to identify successful ways to commit funds to a cited objective and increase average program effectiveness. She also discusses the performance of other important aspects of PPBS such as analysis of alternative courses of action and the planning cycle under PPBS (Rivlin, pp. 914-921). Some of the information in this paper appears to be transferable and useful during the process of implementation of PPBS in a student health service.

Grosse's paper (1969) may be even more useful since it is entirely directed to the health field rather than the three fields of health, education and welfare. He discusses some of the data that need to be known in order to make resource allocation decisions and describes approaches employed in the Department of Health, Education and Welfare (HEW). In order to gain better understanding, his four-step procedure would include (1) problem identification, (2) assignment of current and potential activities to the problem, (3) learning the status of activities' resources and (4) understanding the political environment (Grosse, 1969, pp. 1199-1200). He also has useful discussion on developing information and measuring program output. The very important point is made that measures might be quite crude at first, e.g., in terms of such initial program impacts as persons covered, and then refined to such ultimate benefits as cases cured and

productive years added. These and other implementation procedures are explained in much more detail in a guidance manual provided by HEW (1968b). In this manual, all PPBS terms are defined, sample program structures are illustrated, output data are discussed and the preparation of a "cross-walk" is explained, among other things. HEW has also published several program analyses such as *Cancer* (October, 1966b), *Arthritis* (September, 1966a), *Selected Disease-Control Programs* (September, 1966e) and *Kidney Disease* (1968a). As cited above, these program analyses have been criticized by Gross (1969, p. 135) because the programs are not specified in adequate detail and also because no model displaying sequential relationships is shown.

Another source of very specific and useful guidance is the Bureau of the Budget (U. S. Congress, 1968a). When President Johnson (1967c, pp. 1-2) directed that PPBS would be implemented throughout the executive branch, he also designated the Bureau of the Budget to supervise the initiation and operation of PPBS. Budgeting may be performed on an incremental basis in which last year's budget is used as a base and increased or decreased by a percentage of the base. "Zero-base" budgeting has no base and each budget item must be thoroughly justified each year. Incremental budget procedures have normally been followed in the government but PPBS is zero-base oriented, in that current programs

are evaluated on the basis of stated objectives rather than last year's budget (Schultze, 1968, pp. 79-80). Schultze (1968, p. 80) points out that personnel in his agency had not intended to require a zero-base review for all program elements, but admits there was a lack of selectivity by his subordinates. The result was the submission of reams of paperwork which represented "comprehensive analyses" but actually were not worth much. The important point for any organization using PPBS to realize is that realistic criteria must be selected by which programs or program elements will be identified for analysis in depth. A very recent publication from the Bureau of the Budget provides even more useful guidance, in that examples of various required submissions such as a program memorandum, a special analytic study, a program and financial plan and the federal budget by program structure are illustrated (J. W. Carlson, 1969, pp. 676-762).

There have also been publications which address the specific problem of measuring the effectiveness of programs in terms of output, which PPBS emphasizes. This is a challenging task and one that has not been addressed effectively because objectives to be measured have not been well stated, or useful measures or desired related statistics have not been available, and there has been considerable reluctance to commence with crude measures. As indicated above,

Enthoven (1969, p. 902) encourages the use of crude measures if these are all that are available, since this will initiate argument which will produce more refined measures. A recent conference addressed this problem of assessing effectiveness and, although it pertained to child health services, the concepts and possible measures discussed appear to be quite transferable to this project (Bergman, 1967). In one paper, for instance, measurement of the input (e.g., health personnel, facilities, patients), intervening factors (e.g., appointment keeping and utilization) and ultimate criteria or output (e.g., death, disability and disease) are considered as parts of the medical care process (Haggerty, 1967, p. 62).

At the same conference, White (1967, p. 24) correctly points out the extremely important role that the definition of objectives plays in the evaluation of effectiveness of health care for adults as well as for children. He speaks of a "performance" budget and distinguishes between activities ("seeing children") and performance.

Fein, taking the economist's viewpoint and discussing the benefit-cost rates, verifies a pitfall cited above when he warns that trying to be too "scientific" will delay progress and quotes Voltaire who reportedly remarked: "The best is the enemy of the good" (1967, p. 50). With regard to relating the benefit of the benefit-cost ratio to earning

power, Fein was criticized because it was suggested that if such measures were used, handicapped children and young adults as well as older adults would probably not receive treatment (Fein, 1967, p. 52). This argument does little violence to PPBS, however. Benefit-cost analysis is a tool to provide more and better information to the decision-maker, and criteria on which decisions are based are meant to be selected by the decision-maker and not provided by the analyst.

The condition of data in many areas is also unsatisfactory; however, there are suggestions available concerning this problem area. Linder (1968, pp. 360-361) believes that more is needed than a death rate to determine an acceptable health index for the country and proceeds to discuss new techniques which may assist in judging the health of the nation. He tells of the many problems associated with medical case records collected by physicians or compiled in hospitals and believes that it is necessary to go to those persons about whom medical information is desired. Sullivan (1966) discusses some conceptual problems related to the development of a health index.

In a later chapter, appropriate information from these and other sources is examined more carefully in an effort to induce a conceptual framework, including procedures and formats, which reflects the PPBS approach and may be used to assist the decision-maker in a university student health service.

*Overview*

In Chapter II much of the literature concerning PPBS is reviewed. Generally the information includes the PPBS approach, the so-called traditional (incremental or decremental) method of budgeting and the political decision-making process. The purpose of the review is not to prove or disprove the utility of the various approaches but to establish advantages and disadvantages of each and particularly to discover possible applications of the PPBS to a university student health service.

Chapter III is essentially a discussion of university health services. It begins with the development of student health service and ends with the current status of university health services. It draws heavily on the *Recommended Standards and Practices for a College Health Program* and includes a brief but specific discussion about the Student Health Service at the University of Florida.

Cost-benefit analysis is a very important aspect of the PPBS approach; however, relatively little has been developed with respect to measurement of the benefits of various health programs. This is such an important aspect of the PPBS approach that Chapter IV is devoted to a review of the rather limited information regarding possible criteria for the measurement of the output of health programs.

In Chapter V a program structure for the Student Health Service at the University of Florida is outlined and the various program categories, subcategories and program elements are explained.

Chapter VI compares budgeting at the Student Health Service at the University of Florida according to the traditional method with a PPBS approach to the same task. To facilitate this comparison, a "crosswalk" procedure is established.

Findings are reported, conclusions are drawn and recommendations are suggested in Chapter VII.

## CHAPTER II

### THE PPBS APPROACH TO BUDGETING: CONCEPTS, GUIDELINES, PROCEDURES AND LIMITATIONS

Opinions of PPBS range all the way from President Johnson's (1967b, p. 2) claim that it is a new and revolutionary way to plan, program and budget to that of the quizzical political scientist (Mosher, 1967, p. 70) who is still looking for the differences between the PPBS concepts espoused by David Novick, RAND Corporation and the Defense Department and the traditional program budgeting which supposedly originated several decades ago. There are varying accounts of the origin and development of PPBS (Schulte, 1968, pp. 1-17; Shick, 1968; Novick, 1966); however, only a relatively brief description of this information seems necessary for this investigation, since the primary concern relates to the concepts, guidelines and procedures which have been developed in the Federal Government since 1961 or by others who have demonstrated expertise in the field and whose contributions seem useful in addressing planning, programming, and budgeting problems in a university student health service. Limitations of PPBS are also of prime interest and several have materialized during implementation periods.

Novick (1966, p. 1) states that program budgeting was introduced into the Federal Government in 1942 by the War Production Board. Although he is unable to pinpoint the origin in industry, he believes DuPont was practicing something very much like program budgeting before 1924. He briefly traces the development of program budgeting to the implementation directive by President Johnson in 1965 by explaining the Controlled Materials Plan with which he was closely associated during World War II and cites later steps in the federal development taken by the Bureau of Reclamation, the Coast Guard and the RAND Corporation.

Schultze (1968, pp. 1-17) arrives at President Johnson's directive to implement PPBS by a substantially different route and gives much credit for his explanation to a "perceptive article" by Shick (1966). Both authors essentially describe the evolution of budgetary techniques of which PPBS is the latest major improvement and in some respects represents, according to Schultze, "a quantum jump from the past" (1968, p. 5). Borrowing from Anthony (1965), Schultze explains that a budget may have the roles of financial control, managerial control and strategic planning. Although he defines each role, he uses the purpose of the roles to explain succinctly the significance of various governmental developments:

Both financial and managerial controls take the objectives of federal programs, their design and specification, and the level at which they are carried out as given. The

purpose of these controls is to insure that approved programs are operated honestly, efficiently, and according to the provision of the law. Strategic planning, however, brings into the budgetary process precisely those decisions about program objectives, specifications and level which are taken as given in the financial and managerial control functions. (Schultze, 1968, p. 6)

Unlike Novick (1966) who credits industry for the origin of PPBS, Shick (1966, p. 245) places the first stage, which is primarily concerned with expenditure control, in the Federal Government during the period 1920-1935. During this period of "control orientation," the Budget and Accounting Act of 1921 was significant and established an executive budget for the first time since Hamilton's days as Secretary of Treasury. The Bureau of the Budget was established; however, budgeting and policy making were completely separated, and "paper clip efficiency" took precedence over more general management practices (Schultze, 1968, pp. 8-10).

During the New Deal Era, the President's Committee on Administrative Management (the Brownlow Committee appointed in 1937) criticized the forceful emphasis placed on control by the Bureau of the Budget and strongly urged that it change its emphasis to coordinating, under Presidential direction, the elements of the rapidly growing federal structure. Acceptance of the suggestion and the shift to a management orientation became effective as the Bureau of the Budget transferred organizationally from the Treasury to the Executive Office of the President. It subsequently increased

its staff tenfold with persons trained in public administration rather than in accounting as had predominated when the emphasis was on control. In 1949 the Hoover Commission labeled the practice of budgeting according to activity as "performance budgeting" (Schick, 1966, pp. 249-250).

Chronologically, Shick (1966, p. 251) places the beginning of the planning orientation phase in the mid-1950's when Novick, Smithies, McKean and other economists strongly suggested that the budgetary process be reformed by drawing from economics and systems analysis. The performance budgeting concept which then guided the budgetary process drew heavily from cost accounting and scientific management, and references in the literature described budgeting as a management tool and equated the budget to a "work program." Management-oriented performance budgeting developed functional budget categories and attempted to increase efficiency of particular activities by supplying work-cost measurements. However, program budgeting is oriented toward planning attempts to provide for sound policies by supplying the decision-maker with useful cost and benefit data related to alternative courses of action in accomplishing established objectives and by providing nonsubjective criteria which are necessary for effective accomplishment of the established objective. Objectives are generally fixed in performance budgeting; whereas, objectives are continuously in the process of being

refined in PPBS. Shick summarizes many of his ideas with a table (see Table 1) which depicts the nature of various characteristics of the elements of the budgetary process as they are related to the three primary budget orientations which occurred during the 1920's.

Many of those best known for questioning the utility of PPBS are political scientists and public administrators; however, there is typically a reasonable amount of opposition from many persons in organizations simply because of resistance to change. Schultze (1968, p. 2) explains that PPBS using cost-benefit analysis is designed to provide answers to problems by ascertaining the most efficacious solution based on objective criteria; whereas, political decision-making renegotiation between individuals and groups who frequently do not use objective criteria and, at the same time, possess significantly differing values. Pursuing either approach to the exclusion of the other does not seem to be the most realistic decision-making practice. In many decision-making situations, it is not possible or practicable to develop the one best solution; therefore, a certain amount of compromise or arbitrariness is necessary. This is especially true in the health care field because of difficulties in meaningfully quantifying elements required for decision-making. Nevertheless, quantification and observance of objective criteria where possible are useful just as it is useful to understand that substantially differing values must be considered in

TABLE 1

## Some Basic Differences Between Budget Orientation

Characteristic	Control	Management	Planning
Personnel Skill	Accounting	Administration	Economics
Information Focus	Objects	Activities	Purposes
Key Budget Stage (central)	Execution	Preparation	Pre-preparation
Breadth of Measurement	Discrete	Discrete/ activities	Comprehensive
Role of Budget Agency	Fiduciary	Efficiency	Policy
Decisional-Flow	Upward aggregative	Upward- aggregative	Downward- disaggregative
Type of Choice	Incremental	Incremental	Teletic
Control Responsibility	Central	Operating	Operating
Management Responsibility	Dispersed	Central	Supervisory
Planning Responsibility	Dispersed	Dispersed	Central
Budget-Appropriations Classifications	Same	Same	Different
Appropriations- Organizational Link	Direct	Direct	Crosswalk

Source: Shick, 1966, p. 258.

many decision-making situations. Hopefully this problem may be recognized and objection dismissed when it is understood that PPBS is not meant to replace all other forms of, and aids to, decision-making but rather to assist significantly in decision-making because it aims to supply more and better information to the decision-maker and sometimes this creates difficulties. It seems reasonable to assume, however, that most serious decision-makers would desire the maximum amount of useful information available.

The first two phases of the changing budget orientation emphasized control and efficiency, respectively; however, Schultze briefly explains how PPBS goes beyond control and efficiency in at least three ways with respect to the Federal Government:

. . . (1) it is concerned with the specification of objectives and the selection of programs; (2) it presupposes that decisions on these matters can be aided by systematic analysis, using criteria which are, at least in part, not political; and (3) it establishes a planning system that tends to strengthen the authority of the upper tiers of the executive hierarchy—the President and his department heads—against the lower tiers of hierarchy—the heads of subordinate bureaus and offices. And in so doing it significantly affects the web of relationships between the executive and the Congress. (Schultze, 1968, p. 16)

Schultze cautions that in each of these areas, PPBS is potentially in conflict with the political decision-making process. It is not the purpose of PPBS to replace the political decision-making process and Schultze (1968, p. 101) spends much time in assessing the appropriate relationship between

the analytic method employed by PPBS and the political process. This relationship is crucial since the survival of PPBS depends on consideration of "political constraints" in program selection which vary from program to program.

### *Concepts*

Enthoven (1969), Schultze (1968) and J. W. Carlson (1969) have all been intimately connected with implementing PPBS in the Federal Government and all explain the process in somewhat different terms. In some instances the differences seem to be more apparent than real and in other cases differences appear to be slight but are meant to represent improved instructions or explanations. Schultze (1968, pp. 19-24) has listed six aims or tasks of PPBS which seem to represent the concepts of all three authorities. First, PPBS requires a careful and specific definition of the objectives of the primary areas of activity of the organization. This requirement presents some very difficult problems initially. At times objectives are stated in such general terms that their accomplishment cannot be measured and, therefore, are useless. In other cases they have been so narrowly defined for ease of measurement that they are likewise not very useful as a primary objective of the organization. It is crucial that the relationship between objectives and criteria (or output measures) is thoroughly understood. Objectives may have to

be revised in order that meaningful criteria can be developed just as criteria may have to be less statistically elegant (at least initially) than is desired in order that some measure of accomplishment of a meaningful objective can be made. Of course, simply defining an objective in a meaningful way can be a torturous task in itself.

PPBS is output-oriented; therefore, the second task is to determine what the output of each program is and how it will be measured. For example, using the number of patients seen by a doctor as a measure of the effectiveness of a prevention program in health care would not be desirable since patients examined are inputs rather than outputs and do not necessarily indicate the effectiveness of a prevention program.

Third, the total costs of the program must be measured. This is possibly a less difficult task than measuring output in most cases, but it is by no means a simple task. There are frequently indirect costs which are difficult to detect but, nevertheless, should be provided to the decision-maker and considered before making the decision. Necessarily, a certain amount of arbitrariness accompanies allocation of costs and impreciseness accompanies arbitrariness. Additionally, future costs of the various programs must be estimated and listed. Program recommendations have been accepted because the future benefits were emphasized and more than

justified the initial costs, but in some cases costs of future years became prohibitive and the program had to be abandoned after much money had been spent but long before the pay-off period. Knowledge of costs of programs for future years—even though they are rough estimates—will provide the decision-maker with much information needed to avoid such long-range situations where benefits are more apparent than costs.

The fourth aim of PPBS is to develop programs and objectives for future years. Certainly with respect to many programs in the health care field, it would be difficult to accomplish all potential objectives in one year. For example, if it were desired to provide complete health care for dependents of students, it would probably be necessary to phase in such a program over a multi-year period with various sub-programs and objectives established for each of the years. There have been some problems in this area of PPBS implementation in the Federal Government. Rivlin (1969, p. 919), J. W. Carlson (1969, p. 623) and Schultze (1968, pp. 22-23, 97-101) provide different views of the fact that the Bureau of the Budget now instructs the various departments that the program and financial plans "should reflect the future implications of current and past program decisions of the agency head and, subsequently, of the President" (U. S. Congress, 1968a, p. 6). It should be noted that no provision is made to reflect the implications of future decisions and associated

projected costs. (This point will be discussed in more detail later when program and financial plans are described.)

Fifth, if PPBS is followed, alternative courses of action will be considered normally by comparing costs and benefits of each program and supposedly selecting that course of action which provides a specific benefit for the least cost when compared with other alternatives or provides the maximum benefit for a specifically prescribed cost. This approach does not produce the obviously correct answer because of the precise quantitative data compared with the single quantitative criterion. The job is much, much more difficult, especially in the health care field and is fraught with pitfalls stemming from the need to make numerous qualitative judgments. (These limitations will be specified in some detail later in this chapter.) It is necessary to understand the value of using cost-benefit analysis as a framework within which to think about the types of choices that have to be made by the decision-maker (McKean, 1968, p. 142).

Finally, after subjecting the appropriate policies and programs to analyses along the lines described above, the results should be combined with the budgetary process. The results gained through the analytic process described should provide data that will enhance the probability of occurrence of more effective decisions. Schultze finally summarizes the goals of PPBS as:

. . . the specification of objectives, the evaluation of program output as it relates to objectives, the measurement of total systems cost, multi-year planning, the evaluation of alternative program designs, and the integration of policy and program decision with the budgetary process. (Schultze, 1968, p. 24)

### *Guidelines and Procedures*

Since President Johnson assigned the Bureau of the Budget the responsibility of supervising the implementation of PPBS throughout the executive branch of the Federal Government, the most authoritative information and instructions with respect to PPBS are contained in BoB Bulletins 68-2 and 68-9 (U. S. Congress, 1967f, pp. 9-34, and 1968a, pp. 1-19). Also, even more current information is provided by Jack W. Carlson (1969), Assistant Director for Program Evaluation of the Bureau of the Budget. More specific guidance for areas of particular interest to this investigation are contained in a publication from the Department of Health, Education and Welfare (1968b). Utilizing information from these documents does not mean revisions may not be suggested, and some of the instructions may be of too general a nature because of the level of the organization for which they were developed; however, since state, county and municipal organizations will be working with organizations of the Federal Government, it does not seem realistic to attempt to develop a thoroughly original format. Accordingly, this investigation will be

pursued generally using the terminology and elements employed in the publications cited. If additional, pertinent data are developed by the State of Florida or by the University of Florida, these, of course, will be used as applicable.

J. W. Carlson lists the following component parts of PPBS: "(1) Program structures which display each agency's physical and financial activities according to objectives or common outputs; (2) issue letters which summarize the agency's and Budget Bureau's list of major policy issues in need of analysis and evaluation during each planning and budgeting cycle; (3) special analytic studies which reflect intensive analysis of particular problems; (4) program memoranda which register agency choices between alternatives and summarize relevant analysis affecting the decisions; and (5) programs and financial plans which display for the past 2 and next 5 years data on the financial inputs and physical outputs resulting from proposed and past commitments" (1969, p. 613).

According to the Bureau of the Budget, activities in the program structure should be grouped together in a manner that allows cost-effective analysis of alternative courses of action to be performed; consequently, each group should contain activities with common objectives or outputs. However, program categories need not and probably will not coincide with appropriation/budget structure categories or with organizational structures. Usually the program structure

of an organization will include program categories, program subcategories and program elements which are established according to the following general criteria specified by the Bureau of the Budget:

- a. Program categories—The categories in a program structure should provide a suitable framework for considering and resolving major questions of mission and scale of operations which are a proper subject for decision at the higher levels of management. . . .
- b. Program subcategories—Subcategories should provide a meaningful substantive breakdown of program categories, and should group program elements producing outputs which have a high degree of similarity.
- c. Program elements—A program element covers agency activities related directly to the production of a discrete agency output, or group of related outputs. Agency activities which contribute directly to the output should be included in the program element, even though they may be conducted within different organizations, or financed from different appropriations. Thus program elements are the basic units of the program structure.

Program elements have these characteristics: (1) they should produce clearly definable outputs, which are quantified wherever possible; (2) wherever feasible, the output of a program element should be an agency end product—not an intermediate product that supports another element; and (3) the inputs of a program element should vary with changes in the level of output, but not necessarily proportionally. (U. S. Congress, 1968a, p. 5)

An example of a portion of the program structure developed for the Student Health Service at the University of Florida and with four levels of classification is shown:

2

*Remedial Measures*

2.1

*Diagnosis and Evaluation*

2.11

Inpatient

2.111

Intake

2.112

Evaluation

2.113

Discharge or Transfer

Developing the program structure can be very difficult but useful simply because it requires an explicit statement of objectives as well as a determination of how accomplishment can be measured. A careful analysis of this nature can also indicate gaps in missions of an organization as well as possible trade-offs and alternatives that may be detected and considered (J. W. Carlson, 1969, p. 617).

Although the program structure is the framework of PPBS, the primary elements of PPBS are three documents: the program memorandum (PM), the special analytic study (SAS), and the program and financial plan (PFP). Program memoranda concern major program issues (MPI) which are specific questions that require answers during the current budget cycle. Typically these questions will come to the head of the organization in the form of "issue letters" from the person charged with implementing and monitoring PPBS. In the Federal Government, the Director of the Bureau of the Budget sends out the issue letters, although it is possible to establish a major program issue through verbal discussion and without a formal letter. Major

program issues are developed so that the most important problems can be determined and analyzed, since competent PPBS analysts are somewhat limited throughout the federal agencies (J. W. Carlson, 1969, p. 618). The Bureau of the Budget provides the following guidance concerning major program issues:

A Major Program Issue is a question requiring decision in the current budget cycle, with major implications in terms of either present or future costs, the direction of a program or group of programs, or a policy choice. The most important feature of the statement of a Major Program Issue is the identification of specific alternative courses of action, and the costs and benefits of each. (U. S. Congress, 1968a, p. 2)

Instructions from the Bureau of the Budget in 1967 indicated that a program memorandum should be prepared on each program category (U. S. Congress, 1967f, p. 10); however, this apparently was considered impractical with respect to the somewhat limited analytic resources of the agencies. Also, one former Director of the Bureau of the Budget (Schultze, 1968, p. 80) indicates that some of his employees may have been less than selective in their requirements for analyses. At any rate, BoB Bulletin 68-9 instructs that:

A PM presents a statement of the program issues, a comparison of the cost and effectiveness of alternatives for resolving those issues in relation to objectives, the agency head's recommendations on programs to be carried out, and the reasons for those decisions. PM's therefore provide the documentation for the strategic decisions recommended for the budget year. (U. S. Congress, 1968a, p. 2)

The strategic analytic studies simply show the detailed analyses that led to the decisions articulated in the program memoranda. Some of the strategic analytic studies analyze problems which are applicable only to the current year while others are continuing studies which might be established to gain more useful data, to study the effectiveness of program objectives and possible alternatives as conditions change over time and to gain information which seems likely to prove useful regarding future major program issues (U. S. Congress, 1968a, p. 2).

The document which is derived from the aforementioned documents and elements is the program and financial plan.

It is defined by the Bureau of the Budget as

a comprehensive multi-year summary of agency programs in terms of their outputs, costs, and financing needs over a planning period covering the budget year and four future years, or a longer period if this is appropriate to agency programs. (U. S. Congress, 1968a, p. 2)

Although program memoranda deal only with major program issues, program and financial plans will portray a summarization of costs, benefits and financing needs for all programs. Accordingly, the PFP is regarded as the basic planning document of PPBS by the Bureau of the Budget. Alice Rivlin (1969), Assistant Secretary for Planning and Evaluation, HEW, until March, 1969, disagrees with this belief and claims that the Bureau of the Budget now allows consideration of future budgeting implications of only past

and present decisions rather than requiring a comprehensive multiyear program and financial plan which includes budgetary implications of future decisions. Further, she accuses the Bureau of the Budget of backing away from forward planning with their change in procedure because a plan from which implications of future decisions have been removed is no longer a plan. She believed the Bureau of the Budget made the change so that the administration would not be embarrassed by plans being exposed that could indicate a strategy or be criticized when, in fact, no decisions had been made or approval given.

Schultze (1968, pp. 26-30, 97-101), Director of the Bureau of the Budget during this implementation period, recognized and discussed the problem cited by Rivlin and the dilemma that existed. Although he realized that the change in procedure took away the forward planning aspect of the program and financial plan, he feared that if longer term projections were allowed without some constraints they would tend to be "pie-in-the-sky" estimates and of limited value. Moreover, if longer term plans were approved and later it was deemed wise to stop or cut back the plan, he could visualize considerable resistance. He suggests a compromise solution. First, a PFP should be prepared on the basis of future implications of past and present commitments. Second, the head of the agency could also prepare plans which considered

longer term programs and related financial implications; however, this second plan would be tentative in nature and used primarily as an internal management tool by the particular agency head.

J. W. Carlson (1969, p. 623) is more specific in his criticism of requiring consideration of financial implications of future decisions as outlined in the original instructions for the preparation of program and financial plans. According to Carlson, the original instructions resulted in a series of "lengthy wishlists" which reflected the desires of the heads of agencies if funds were generally unrestricted. Many agencies indicated annual increases in program expenditures of about 25 per cent. Some agency heads attempted to be more politically astute and asked for smaller increases which seemed more likely to gain approval. Carlson believes that without consistent constraints on the availability of future funds, this type of program and financial plan preparation is of little value. The fact still remains, however, that with the content of the PFP limited to future implications of past and present commitments, the PFP is not really a document representing forward planning in its true meaning.

One problem that arises for all organizations derives from the need to establish a direct relationship between the program structure which is the framework of PPBS

and the appropriation structure used as a framework on which to base monetary appropriations. In other words, the organization must determine its requirements in terms of the program category/budget structure and then translate these requirements into appropriation/budget structure terms. This is accomplished by developing a "crosswalk" which provides a means of converting from the program structure of PPBS to the appropriation structure. This conversion will be required until the U. S. Congress and state legislatures appropriate funds according to program categories, subcategories and elements rather than according to traditional or functional categories. Relatively little specific information is found in the literature with respect to the development of a crosswalk. However, HEW provides some quite specific directions to its agencies concerning the relationship between the program structure and the appropriation/budget structure. The crosswalk is described as "a simple table, the stub of which lists program categories and the columns of which show appropriations and budget activities" (U. S. Department of Health, Education and welfare, 1968b, pp. 16, 50-57).

Important in this translation is the program budget code which is a six-digit code derived from the normal appropriation code and assigned to each operating program which is a combination of resources and activities that

have the same management and a common source of funding. There is also a program category code which is a six-digit code assigned to a program element and indicating the location of the program element in the program structure. Each of the operating programs is assigned to a category in the program structure. Frequently one operating program will be assigned to more than one program category but this simply illustrates that operating programs have more than one purpose. The program budget codes allow the multi-objective nature of the operating programs to be identified and analyzed through the program structure of PPBS and to be translated again via the crosswalk into the operating program of the appropriations structure.

If there is a head of an organization who wants to use PPBS and he has a competent staff of analysts, there is a high probability that the system can provide significant assistance to the top-level decision-maker who wants to make his own decisions and understand why he makes a particular decision (U. S. Congress, 1968d, p. 6). There has also been a considerable amount of criticism directed at PPBS; however, much of the faultfinding may be somewhat emotional in nature and deriving from those who prefer the political decision-making process to one emphasizing analysis. Nevertheless, there are real pitfalls and problems related to PPBS which should be seriously considered even by enthusiasts of this analytic approach.

*Limitations*

When President Johnson decided to implement PPBS in the Federal Government, he overruled suggestions from some members of the Bureau of the Budget to follow a step-by-step procedure and approach and implement PPBS in a few agencies at a time on a selective basis. Hindsight suggests that a less rapid rate of implementation might have been more effective (U. S. Congress, 1968b, p. 2). The successful development of PPBS in an organization requires thorough understanding and a high degree of patience by those charged with the responsibility of implementation, a cooperative attitude by most of the other organization members and a continuously demonstrated high interest on the part of the top manager. Premature attempts to install PPBS before such an environment can be developed runs the risk of failure or at least less than the most effective operation. On the other hand, waiting until the situation seems precisely "ripe" can allow the opposition time to entrench themselves firmly enough to thwart any attempt at PPBS.

If approval is gained to implement PPBS, many operational problems can be anticipated. There will be problems working out objectives, developing programs and accomplishing the remaining requirements of PPBS. Initially

it will probably be necessary to work under the normal appropriation/budget structure as well as the program structure of PPBS. This will require much additional paperwork, the development of a crosswalk and will undoubtedly cause many to wonder if the initial or foreseeable results are worth the additional effort. Accordingly, it has been recommended that the program structure be as similar to the appropriation structure as practicable (Novick, 1965, pp. 293-294). Charles Zwick, Director of the Bureau of the Budget in 1968 was quite specific about this in his commentary accompanying PPBS guidelines to the heads of executive agencies. At this time he commented:

Bulletin 68-9 reflects recognition that a "two-track system"—one geared to program analysis and a separate one to appropriations—may result in confusion and an undue burden of effort on both agency and Bureau staff now involved in working with similar data in both systems. In Bulletin 68-9 we have, therefore, asked that agencies consider changes in their program structures to assist in integrating program and appropriations structure, where such changes will not impair the usefulness of the program structure for analysis and program decisions. (U. S. Congress, 1968a, p. 18)

It is generally understood that analysis is a very important requirement for a successful PPBS and many have expressed fear that analysis will provide irrefutable answers and thereby obviate the need for judgment by the decision-maker and generally downgrade his role. Schlesinger

(1968, pp. 3-7) recognizes this possibility but believes that a more important question is whether the decision-maker will allow all appropriate analysis to be performed ". . . even when it is his own hobby horses which are under scrutiny? How many hobby horses are there? Are they off limits to the analysts?"

Several authorities indicate that adoption of PPBS will probably cause a centralization of power through control and there will be a shift of this control from the lower levels of management to top management or the top executive (Shick, 1969; Capron, 1969; Mosher, 1969). It generally is reasoned that since PPBS will provide the top decision-maker with more and better information about program categories, he will be able to make effective decisions himself rather than finding that many of the required decisions have been made by the time recommendations reach him (Shick, 1969, p. 145).

There have been many references to the Defense Department as the prime mover of PPBS and the implication has frequently been that this analytic approach to decision-making allowed Secretary McNamara to gain the control the Secretaries of Defense should have had in the past. Mosher (1969, p. 163) is quite specific on the point and states that acquisition of strength by the Secretary of Defense in his associations with the Joint Chiefs of Staff, the military

services, the U. S. Congress, and private industry was possibly the most significant outcome of PPBS in the Department of Defense. The assertion that under traditional or incremental budgeting procedures followed by agencies of the Federal Government, budgetary power resides in large measure at the lower levels of management reinforces McNamara's accomplishment (Shick, 1969, p. 143). However, recent information (Heiman, 1970) would attribute the shift of power to the methods of McNamara and his Assistant Secretary of Defense, Systems Analysis, Alain Enthoven, rather than to PPBS. According to this account, the Joint Chiefs of Staff and the military services submitted budget estimates which reflected the monetary amounts necessary to fulfill every United States commitment made throughout the world. This practice was required by McNamara but, according to the current Secretary of Defense, Melvin Laird, such a budget estimate was unrealistically high. Nevertheless, after the request was submitted as required, the Office of the Secretary of Defense would lower the estimate by about 30 per cent ". . . thus annually emerging as heroes who overcame the greedy brass" (Heiman, 1970, p. 43). In fact, a Draft Presidential Memorandum which indicated the composition and funding of the various program categories of the whole Department of Defense was prepared by Enthoven's organization and the military services were given one month

to request reconsideration. Typically, the rebuttals were disapproved. Certainly this was an example of the power of an organization shifting to the top; however, the changing decision-making process did not seem to derive from PPBS techniques. In fact, it would appear that the advantages of the PPBS approach were not being exploited. Although the military services were displeased with the way PPBS was forced upon them in the past, they currently agree that the situation required them to develop an analytic capability. Accordingly, they now feel perfectly capable to assume the role of decision-makers within PPBS guidelines as articulated by the Defense Department (Heiman, 1970, p. 45).

Recognizing the limitations of PPBS under these circumstances, Secretary Laird has more or less reversed the process and pushed much of the decision-making downward. Although the Office of the Secretary of Defense still provides ceilings and general fiscal guidance to the Joint Chiefs of Staff and the military services, these organizations may make various analyses and choose trade-offs within the general fiscal guidance. Now analyses are being transmitted to the Office of the Secretary of Defense for review rather than the other way around (Heiman, 1970, pp. 44-45).

There should be some flexibility in establishing PPBS and changes in policies indicating such flexibility

are apparent in the Federal Government. For example, the Bureau of the Budget has changed its requirement from comprehensive projections of all contemplated programs to projections related only to programs which have been approved, now requires program memoranda on only major program issues and not on "matters small and large, peripheral and central, and back burner and front" which produces useless volumes that gathers dust on the shelves, and encourages organizations to develop a program structure which is as compatible as possible with the appropriation structure and still allows useful analyses within the framework of PPBS (U. S. Congress, 1968b, pp. 3-4).

It is most important to understand that if the top manager is not reasonably enthusiastic about installing PPBS, this approach to decision-making will probably not be very successful. Undoubtedly, McNamara's strong support and very active participation contributed significantly to the establishment and development of PPBS in the Defense Department. Schelling was even more specific on this point when he said:

PPBS works best for an aggressive master; and where there is no master, or where the master wants the machinery to produce his decisions without his own participation, the value of PPBS is likely to be modest and, depending on the people, may even be negative. (Schelling, 1968, p. 2)

There are some very difficult problems to be faced in developing a program structure. Schultze (1968, p. 32) has

warned against striving for an "ideal" program structure, the existence of which he categorizes as one of the misconceptions of PPBS. Fisher (1966b,p. 27) warns that months or even years could be spent developing the "perfect" program structure but suggests that since the perfect structure does not exist, about two months of intensive work is needed to develop a useful initial program structure. This is a very difficult job and Quade (1966b,pp. 19-26) discusses some associated problems under the heading of limitations. He warns particularly that systems analysis is not scientific research because, even though attempts are made to maintain standards of scientific inquiry and follow scientific methods, the purpose of the analysis is primarily to suggest courses of action rather than to predict outcomes. Although there is an attempt to emulate engineering and use the results of science to accomplish things economically and efficaciously, differences are apparent when the approach is applied to national problems. It becomes evident that value systems applicable to the problems are difficult to discover and methods of testing validity are also generally unavailable. Further, systems analysis is less objective than many believe because of the judgment and intuition that enters into model designing, determination of relevant factors, selecting alternatives, choosing criteria and the like. However, Quade believes that following a "party line" unconsciously

represents the most hazardous pitfall faced by the analyst and, further, that this situation exists to some degree in all organizations. After citing the pitfalls, he specifies that necessary incompleteness of analysis, lack of methods to predict the future and the inexact nature of measures of effectiveness are limitations which restrict analysis to an advisory role.

There never seems to be enough resources to perform an analysis with the degree of thoroughness and accuracy desired by the analyst. Usually there is a time limitation and also a monetary restriction which forces the analysis to be cut short and thereby submitted in incomplete form. It can only be hoped that the most important factors have been considered. Even if time and money were not limited, the intangible and incommensurable nature of some of the factors would probably preclude appropriate consideration. The best that can be done is to provide the decision-maker with as thorough a description of the relevant factors as possible.

Methods of forecasting are constantly being improved but still it is not possible to be certain about the future; accordingly, it is appropriate to predict future events in terms of ranges of possible futures. Certainly this type of analysis is usually much better than no analysis, but succeeding events can be disastrous if suggested courses of

action are accepted without considering their contingent nature. On occasion, quantitative values are assigned and the analysis may appear so elegant that an undeservedly high degree of validity and accuracy may be imputed to the recommended course of action emanating from the analysis.

A considerable number of possible problems and limitations associated with PPBS have been cited because of past tendencies to overstate the utility of PPBS; nevertheless, this statement of conceivable problems is not intended to downgrade the very substantial, potential value of PPBS. Rivlin (1969, p. 922) has called PPBS a "commonsense approach to decision-making." She believes that it may assume other titles but that the decision-maker needs to plan ahead, determine the effectiveness of programs, develop alternatives and systematically analyze them, and arrive at decisions with the aid of the maximum amount of useful information. This is the essence of PPBS.

*A PPBS for the University of Florida*

The principal guidance document for implementing a PPBS at the University of Florida was written by W. K. Boutwell (1970), Assistant Dean of Academic Affairs, who also was responsible for providing much of the verbal, day-to-day guidance to the various colleges, administrative and support units, the J. Hillis Miller Health Center, and

the Institute of Food and Agricultural Sciences. The first two parts of the publication were the "Introduction" and "Purposes and Concepts of PPBS," and both contained information very similar to that available in publications of the Federal Government which explained concepts and objectives and described the content and preparation of documents which would be developed by federal agencies implementing the PPBS. The *integration* of planning, programming and budgeting is considered a key feature of this approach as well as the *system* portion of the PPBS. Boutwell believes that the PPBS approach causes heads of subordinate units to make decisions with the knowledge that budget dollars will be allocated on the basis of the efficacy demonstrated in the accomplishment of organizational objectives. He suggests that the following list of activities must be accomplished in the indicated sequence if a system which relates budget dollars to the achievement of objectives is to be established:

- a. identification of the needs of the segments of society which are being served,
- b. identification of potential objectives for the organization,
- c. identification and evaluation of alternative ways of accomplishing potential objectives,
- d. determination of which objectives will be pursued and how they will be pursued,
- e. programming of the resources required to accomplish chosen objectives,
- f. development of a budget from the resource program, and

- g. evaluation of how resources are actually being utilized and how well objectives are being accomplished. (Boutwell, 1970, pp. 2-3)

He also indicates that several documents are common to previous implementation of the PPBS. These are the program structure, the program and financial plan (PFP), special analytic studies (SAS), program memoranda (PM), and program change proposals (PCP); and these instruments are explained in turn. All have been previously discussed in this chapter with the exception of the PCPs which, according to Boutwell, may serve two purposes:

1. To provide detail data about changes requested in the Program Memoranda
2. To provide a mechanism for requesting changes in the Program and Financial Plan and operating budget during the operating year. (Boutwell, 1970, p. 6)

Allegedly the serving of these two purposes allows the program memorandum to be a "thinking document" and can result in a "current" program and financial plan by allowing needed flexibility. Program change proposals were not discussed in guidance from the U. S. Bureau of the Budget (1967d); however, program change requests (PCR) and program change decisions (PCD) are discussed in Department of Defense Instruction 7045.7 (U. S. Department of Defense, 1969).

In Part 3.0 of his paper entitled, "A PPB System for the University of Florida," Boutwell modifies the PCP and uses the term "proposed program requirement" (PPR) which he

describes as "showing the detailed resource implications of each program proposal in the program memorandum" (1970, p. 7). This area seems to include one of the essential differences between the federal and the state implementation of PPBS. Perhaps the stage of progress of each partially explains this difference. As mentioned previously, early guidance from the U. S. Bureau of the Budget (U. S. Congress, 1967f, p. 10) required that information be submitted in the program memorandum on each program category; however, later guidance (U. S. Congress, 1968a, p. 2) requires data only on major program issues. Apparently the earlier requirement called for too much analytical capability to prepare and, further, submissions were not examined thoroughly or at all in many cases (U. S. Congress, 1968b, p. 4). The program memorandum at the University of Florida is to be a description of the objectives and proposed plan of the organization for the next six years. The other key elements of the PPBS are the proposed program requirements (PPR) and a six-year academic program and financial plan (SYAP&FP). The program structure is, of course, critically important; however, this has been developed by the State Bureau of Planning and the Office of the Chancellor of the State University System. It is then necessary for each organization of the State University System to "plug into" the program structure at the appropriate location. The program structure which has been adopted is as follows:



- 3.34                    *Organized Activities*
  - 3.341                Home Management Houses
  - 3.342                Teaching Hospitals
  - 3.343                Farms, Dairies, etc.
  - 3.344                Teaching Theaters
  
- 3.35                    *Instructional Support*
  - 3.351                Libraries
  - 3.352                Instructional Resources
  - 3.353                Media
  - 3.354                Exhibition Facilities
  - 3.355                Publications
  
- 3.36                    *Student Support*
  - 3.361                Primary
  - 3.362                Secondary
  
- 3.37                    *Administrative Direction*
  - 3.371                Legal Obligations
  - 3.372                Discretionary Obligations
  - 3.373                Advisory Services to the Field
  - 3.374                Liaison
  - 3.375                General Support  
                          (Boutwell, 1970, pp. 8-9)

Since the Student Health Service is not primarily an educational organization, some problems are created. This is especially true since in June, 1970, the State Bureau of Planning had not developed definitions for Student Support: Primary and Secondary which appeared to be appropriate places for the Student Health Service to "plug in." A table in the Boutwell paper (1970, pp. 11-12) shows how the various organizations at the University of Florida relate to the State University System program structure; however, the Student Health Service is omitted. Fortunately, organizations are allowed some flexibility in this matter.

Very specific instructions are provided for the Six-Year Academic Program and Financial Plan (SYAP&FP). The purpose of this document is to show what resources will be required to accomplish the objectives of the organization for the next six years. It is indicated that the administrator should expect that funds in specific amounts will be available in coming years if the plan is approved now. Historically, such an expectation has not proved to be realistic; however, prior planning should be of benefit. The last portion of the instructions concerning the SYAP&FP seems significant. It states:

The SYAP&FP will be updated annually by making adjustments in previously approved plans. Hence, the previously approved plan will form the basis for developing a new plan. The annual update will take the form of additions to and subtractions from the previous plan.

Currently we have no approved plan which can be modified to form our 1971-76 SYAP&FP. We must start from scratch in developing such a plan. Thus, our first effort will require more work than will be required in future years. However, because we are establishing the basis for future planning exercises we must do a good job the first time around. Every effort should be made to make out [sic] year resource requirements as realistic as possible. Otherwise we will have a meaningless plan and will have to start all over again next year. (Boutwell, 1970, p. 13)

Next, the main purpose of the Program Memorandum is explained as follows:

The primary purpose of a Program Memorandum is to explain the numbers in the organization's SYAP&FP. It does this by providing a narrative description of the organization's objectives and how they are to be accomplished. (Boutwell, 1970, p. 13)

Finally, instructions concerning the Proposed Program Requirement (PPR), which is the third main document to be prepared, are given:

The program memoranda should *not* contain detailed information about resource requirements. Only summary figures should be shown in the Memoranda. The detailed data for *each* program proposal in the Memoranda should be contained in an attached Proposed Program Requirements. . . . The PPR's are to be used by the heads of the major budgetary units to make changes in the SYAP&FP as programs are added, changed, or deleted. . . .

A separate PPR must be submitted for:

1. Continuation of existing programs in each program category
2. Each proposed improvement in existing programs in each category
3. Each proposed new program
4. Each proposed program deletion.  
(Boutwell, 1970, pp. 14-15)

Instructions are completed by assigning specific responsibilities for preparation of various organizational program memoranda and SYAP&FP to selected key personnel including the Executive Vice President, the Vice President for Academic Affairs, the Provost of the Institute of Food and Agricultural Sciences, the Provost of the J. Hillis Miller Health Center, Deans of Colleges, Directors of Academic Support Units, Department Chairmen, the Vice President for Business Affairs, the Vice President for Student Affairs, and the Dean of University Relations. The Director of the Student Health Service was not mentioned

but it is assumed—under existing organizational structure—  
that the Director of the Student Health Service will be  
responsible to the Provost of the Health Center for carrying  
out this function.

### CHAPTER III

#### A UNIVERSITY STUDENT HEALTH SERVICE: THE HISTORICAL DEVELOPMENT, SETTING, RATIONALE AND OPERATION

An understanding of a wide variety of historical and operational data associated with college health programs should facilitate the development of meaningful organizational objectives and related program structures, costs and benefits which are necessary if PPBS is to aid in more effective allocation of current and projected resources to a university student health service. Quite obviously all college health programs will not fit the same model. There are variances in size and composition of the patient population, geographic location of the school, institutional philosophy concerning responsibility for health care, type of financial support and other factors which affect a health program. Some of these health facilities are "university" or "college" health services rather than "student" health services because they have been extended to serve faculty, administrative staff, and dependents of students. A few are cooperating with extramural health facilities and are engaged in community projects. Nevertheless, it is believed that enough similarities exist in order to establish a useful conceptual approach which will lead to objectives and

a program structure which may be feasibly modified as required by the operation of the particular health service. Following the "Recommended Standards and Practices for a College Health Program" (October, 1969, p. 42), the term "university" or "college" will be used interchangeably to refer generally to "any institution for higher education." Also when it is not particularly important to the discussion, no distinction will be made between "student" health services and those that include other members of the college community as well.

In his keynote address to the American College Health Association, Philip R. Lee, Assistant Secretary, Department of Health, Education and Welfare, commented:

The first fact that is evident is the lack of facts available about college health services today. We know too little about the health status of students and faculty, about the effectiveness of different types of programs, or even about the manpower and facilities available to provide the needed services. (Lee, 1967, p. 8)

He further complains that a thorough survey of college and university health services has not been performed since 1953; consequently, it is very difficult to determine needs, resources or program effectiveness. He cites other data which imply that much information is sorely needed. In 1957 there were 285 institutions represented in the American College Health Association. In 1967 there were over 500 member institutions but this still represented somewhat

less than 25 per cent of all colleges and universities in the United States. Between 1955 and 1965 student enrollment in colleges and universities advanced from 2.5 million to 5.7 million; however, by 1975 this enrollment figure will reach 8 or 9 million. Due to the lack of data, Lee cannot be sure of numbers of physicians available to universities and colleges on a full-time basis; he estimates the figure to be 1,000 and believes an additional 7,000 are available on a part-time basis. Lee (1967, p. 8) indicates that full-time physicians are preferable; however, Groom (1968, p. 32) points out pitfalls facing those who spend too much time performing routine examinations on generally normal patients (college students) and suggests that the use of part-time physicians who supposedly have more occasion to sharpen their diagnostic acumen outside the university might be a very effective alternative.

Finally, Lee (1967, pp. 8-10) cites additional areas of concern with respect to college health services. He believes that these services are less than comprehensive since only 100 or so colleges have fully organized mental health programs, although this is perhaps one of the most needed programs for college students; only 31 provide dental care; and only about 6 per cent provide medical care to dependents. There has been relatively little accomplished with respect to protection of faculty and students from

environmental hazards. Preventive medicine is cited as a relatively weak area. A survey of 1,221 faculty members at the University of Michigan points this out dramatically:

- 800 had defects which had not previously been recognized
- 21 had malignant lesions
- 81 had diabetes mellitus
- 51 had unrecognized hypertension
- 9 had coronary artery disease with prior occlusion
- 4 had glaucoma
- 3 had multiple sclerosis
- 500 had never had a complete physical examination
- 200 had not received a physical examination within the previous five years
- 10 had not been examined by a physician since being discharged from military service (the problem here being that the service was in World War I). (Lee, 1967, p. 9)

Also with respect to preventive medicine, very little has been done concerning the provision for medical services related to family planning. In the same area of preventive medicine, there has been a lack of coordination of effort regarding narcotics, drug abuse, and alcohol information and education. Lee also points out that there is a surprising lack of coordination between medical schools and college health services. He believes there are good opportunities to perform cooperative research in particular areas specifically significant in student groups (he

specifically cites upper respiratory infection, attempted suicide, trauma and drug abuse) which would not be possible in many cases for the college health services to undertake alone.

### *Historical Development*

A survey of the historical development of college health services will possibly provide useful insights by showing how these organizations reached their current stage of development. Boynton (1952, 1962) and Hurtado (1963) agree that President Stearns of Amherst College first recognized the desirability of providing for the health needs of college students in about 1861 and appointed Dr. Edward Hitchcock as the first medical director of a department of physical education and hygiene. Boynton (1962, pp. 294-301) discusses what she considers milestones in the development of student health services. She confirms that for many years the student health services were oriented toward physical education and did not become medically oriented until after World War I. Any change in emphasis, she points out, usually occurred as a result of reactions to epidemics, a student death or a possible solution to student absence from class. For example, she credits the University of California with the development of one of the first comprehensive college health programs and cites information

written in 1913 by Dr. G. F. Reinhardt of California.

It may be a surprising statement that the University of California infirmary with its large daily clinic and its hospital facilities owes its existence less to a direct effort to improve student health than an effort to improve class attendance (Boynton, 1962, p. 295).

It was learned that absence was occurring because of sickness and not idleness and a health service which offered medical care and infirmary facilities to the student was opened in 1901. A typhoid epidemic in 1903 at Cornell University and at the University of Wisconsin in 1907 provided a stimulus for improved student health facilities at these two universities but had little effect on programs at other colleges. Boynton did not describe many highly significant events as far as the medically oriented developments of student health services were concerned during the period 1861-1930's.

Hurtado was much more critical in his descriptions of the lack of accomplishments from the establishment of student health services until the 1930's but is quite positive that the trend toward medically oriented student health services was much in evidence in the 1930's. After recognizing the change in student health services for the better, he cites future challenges that must be overcome if college health services are to fill a desired role.

Hurtado (1963, p. 294) considered the period 1861-1930's a period of professional stagnation for physicians in the student health services. He points out that the

founders combined physical education, mental hygiene, public health, clinical health and education to form "student health" and that the emphasis shifted from one component to the other for 75 years. During very early years, the physicians in colleges worked closely with athletic teams and served in areas closely related to physical education.

Policies that emanated from these early relationships probably had much to do with the general opinion that student health and physical health were very closely related. This development caused many college administrators to consider college physicians as physical education teachers and this view has not been completely erased. Later, student health came to be related more with health instruction rather than physical education and the physician became more a teacher of hygiene than of physical education. During the same period, many universities placed emphasis on health education. One of the results was that college physicians emphasized teaching and their clinical acumen was frequently impaired as a result; however, to make the situation worse, their teaching ability was being challenged by graduates of schools of education who had been trained specifically for such duties. Surely many physicians had second thoughts about entering the student health field when they realized that their clinical ability would probably suffer and they would also have to acquire teaching capability which their

profession did not normally require. This period which Hurtado classifies as "professional stagnation" ended in the 1930's and he describes the period as follows:

So for three quarters of a century the college physician was neither recognized or respected as a medical man possessing medical or surgical skills. In some instances he turned out to be an excellent teacher of hygiene and health; he was a good mixer, personable, friendly, and genuinely interested in the students' welfare; but, medically, the scope of his professional activities was limited to the treatment of sprained ankles and running noses. (Hurtado, 1963, p. 294)

The definite change in orientation of student health services toward medical problems is very apparent now in large numbers of colleges and universities; however, the speed and magnitude of the change has generally varied directly with the foresight and support of college and university administrations. Still, one question that requires continuous investigation and concern is "How can the college health service most effectively relate with the college administration?"

Hurtado (1963, p. 294) assures that the change in emphasis to clinical service health programs that was so clear in the 1930's and grew stronger as time passed is a permanent change. He proceeds to discuss some clear requirements and challenges that accompany this which must be met if college health programs are to continue to progress toward truly comprehensive programs. The main thrust of Hurtado's (1963, pp. 294-299) discussion of requirements

concern the need to recruit highly qualified members of a medical staff whose patient population will be changing very significantly in size and composition. On the one hand the potential physician for the college health service must be fully qualified with respect to formal training and intellectual ability; yet, he must have the ability, the patience and the understanding to deal with health problems unique to the college student. Further, the potential patient population has been changing significantly as the college health services have proceeded along their evolutionary paths.

The size of the college enrollments has been growing very rapidly and associated with this growth has been dramatic change in the composition of the student population. Since the 1940's older students have been returning to college for special programs, to complete work for degrees or to gain credits which enhance their possibility for promotion in business or other areas. The age span of the student population has extended from 18 to 60 and this offers a different clinical picture to the college physician than the previous 18-24 range which was once common. The numbers of graduate students and foreign students have consistently increased which adds to the heterogeneity of the student population. As college health programs have become more comprehensive, medical services have been offered to

dependents of students, faculty and administrative staff and their dependents. Privileges offered to these latter groups may be abbreviated initially, but the trend appears to be toward the offering of more comprehensive medical care to a broader population. As universities have employed personnel who are under the Workmen's Compensation Law, there has been an increasing requirement to evaluate the mental and physical status of these prospective employees and the college health service has performed the task. These changes have been occurring for several years and the rate of change seems to have been more intense in recent years. There is no indication that the trend, which has greatly increased the volume and scope of medical responsibilities at colleges throughout the country, will change significantly in the near future. Hurtado (1963, p. 298) concludes that the progress made in college health services in the last ten years, which has included an emphasis on clinical medicine, may soon lead to college medicine being considered a medical specialty. This development, he believes, will allow the college physician to be recognized as an experienced and competent clinician and, therefore, deserving of the same professional standing as his colleagues in private practice. Such a development would surely assist in recruiting adequate numbers of well qualified medical staff personnel.

*Setting and Rationale*

It is difficult to generalize about the question of attitudes concerning college health services by college administrations due to the lack of current information and the significant variations between colleges. The key question seems to concern the philosophy of responsibility for student health assumed by the college. If the college does not assume a reasonably full amount of responsibility, then limited resources allocated to student health services will probably be minimal as will be the resulting health services provided the student. Of course, resources allocated to student health services will be minimal if resources for the college are generally scarce, irrespective of the college's philosophy of responsibility for student health. The last relatively thorough survey of health services in colleges (Moore and Summerskill, 1954) indicated that there was no standard student program in any of the colleges. This survey was accomplished by personal interviews with the health service director or his representative at 1,157 colleges. Although the data are now relatively old with limited utility in some areas, some of the possible explanations of wide variations in the health programs surveyed might still be pertinent to the question concerning which colleges accept varying degrees of responsibility for the provision of health services at colleges. The survey

(Moore and Summerskill, 1954, pp. 101-102) showed that differences in health services by geographic areas were not great, although health services provided in the west were somewhat less comprehensive than in other areas. It was found that urban colleges provided somewhat limited services and this was attributed in large measure to the fact that many students lived at home and utilized services of family physicians or local medical services. More comprehensive health services were offered by public schools (e.g., state, federal) and somewhat fewer services offered by denominational schools. Health programs in four-year colleges were more comprehensive than those in two-year colleges and colleges offering graduate and undergraduate programs tended to provide more comprehensive health programs. Colleges with a general and professional training curriculum provided more services than did liberal arts colleges. The greatest variations in health services were associated with the size of enrollment of the school. A rather significant finding was that not only did the larger colleges provide more comprehensive health services as well as more complete facilities and larger medical staff but that these variations were wholly attributable to the availability of funds. Less money per student for health services was available at the colleges with smaller enrollments. These variations between colleges with small and large

enrollments seemed to be attributable to variations of philosophy with respect to the amount of responsibility for provision of student health services which should be accepted by the college. Summerskill (1955) is more specific concerning descriptions of philosophies and how many colleges seem to have which philosophy but leaves many unanswered questions as to philosophies. He writes:

Behind the survey data stands the college's conception of this responsibility. The policy of some colleges is to steer clear of involvement in nonacademic facets of their students' lives. Other colleges have established token programs. Still others show earnest concern with student welfare beyond its intellectual components. (Summerskill, 1955, p. 71)

Thus it is very difficult to generalize concerning philosophies or attitudes of college administrations with respect to college health services. Certainly some giant strides have been made by college health personnel, and attitudes of college administrators toward college health services have probably changed somewhat since the above data were gathered. Nevertheless, current information of this nature is needed because knowledge of the most effective manner in which to relate with college administrations is a critical requirement for college health personnel. Performance of this task effectively requires knowledge of attitudes of college administrations toward college health services and their philosophies concerning the degree of responsibility for student health which will be accepted by the college.

The effective operation of a college health service is also dependent on knowledge of the attitudes of the patients. Farnsworth (1964, p. 2) indicates that attitudes of personnel working in health services, as well as patient's attitudes, must be known if the health service is to be administered effectively. With respect to aims of student health services, he cites the following: (1) to induce utilization of health service by the student when he requires health care, (2) to gain confidence of the student when he is being treated so that he will follow instructions, especially when in an outpatient status and (3) to get the student to follow suggestions which will prevent many health problems, e.g., refraining from using tobacco, "pep" pills and drugs, receiving inoculations, following suggestions regarding proper diets and proper amounts of sleep and following safety practices which should minimize accidents.

Farnsworth (1964, pp. 2-4) also points out that the degree to which the student utilizes college health services depends somewhat on how he perceives the service and its utility. This, in turn, is dependent upon the student's background as well as the image in the academic community reflected by the particular health service. Some studies have shown that patients from working-class backgrounds tend to feel they have more limited rights with the physician and, therefore, are hesitant in asking the physician

questions and do not expect much personal attentiveness from him (Farnsworth, 1964, p. 3). If impersonal service is observed at a student health service, then the beliefs of those who expect impersonal treatment are reinforced. Accordingly, students with such opinions will probably use college health services only in emergency cases. Also, there is evidence which suggests that some physicians alter their communications with patients according to social class. For example, some physicians will not provide much information to patients of a lower social class because they doubt that such patients have the education to understand explanations of their condition (Farnsworth, 1964, p. 4).

According to Farnsworth (1964, p. 4), the fact that college health services are organized on a bureaucratic basis leads many students to expect impersonal and less effective health care than they would receive from a private physician. This situation creates a problem for college health services and they are thus challenged to convince the student that the so-called bureaucratic organization is not less competent but, on the contrary, is capable of providing better health care than a private physician because of the available facilities. Since Farnsworth indicated that studies have suggested that patients expect less satisfactory care from a bureaucratic organization,

a study (Franklin and McLemore, 1968) performed with college students at the University of Texas suggests that this attitude might not be as strong among students as believed. Certainly one study is far from convincing but the results are interesting and reinforce Farnsworth's (1964, p. 3) suggestion that research concerning students' attitudes about college health services would be very useful.

In the study conducted by Franklin and McLemore, it was assumed that "students use the fee-for-service, private, doctor-patient relationship as the standard against which to measure the services of the Student Health Center" (1968, p. 58). Consequently, the investigators expected the students to evaluate negatively the health care obtainable at the health center when compared to that obtainable from private physicians. Instead of this finding, however, the results indicated that more students evaluated the health center favorably than unfavorably with male students evaluating the health center more favorably than did the female students. It was also found that the students used services of the health center more than they used the services of private physicians; although, the utilization of the health center by the students declined as the length of enrollment increased. Also, the generally unfavorable attitudes of female students toward the health service deteriorated even more as the length of enrollments increased (1968, p. 59).

It was expected that the students would evaluate the health center unfavorably with respect to the services of private physicians due to the "bureaucratized" nature of the health center organization and the generally unfavorable attitudes toward bureaucracy. This expectation was reinforced because of some of the specific complaints of this nature by the students and observed by the investigators. Since the students did not evaluate the health service negatively, the investigators believed that possibly the students did not place such a high value on the services of the private physician or possibly they (the investigators) had overestimated the amount of student complaints. Results of further questions which were asked to check the validity of these two possibilities were interpreted as indicating that the students evaluated the services at the health center favorably but considered services of private physicians more favorably. This was further interpreted to mean that people preferred services of private physicians but did not reject organized medicine.

Perhaps more significant was the response of students to the statement, "Other students at this university tend to evaluate their Student Health Center positively." Ninety-two per cent of the females and 75 per cent of the males related their negative attitudes toward the health center to the evaluations and opinions of their fellow

students. The fact that the female students were less favorably inclined toward the health service was partially attributed to the fact that the females on the campus studied were less autonomous and more influenced by opinions of fellow students. Although Franklin and McLemore (1968) realize their findings may not be valid in other settings, certainly the need for more research regarding attitudes of students toward college health services should be of inestimable value to the director of a student health service.

#### *Operation*

There are probably not two college health services exactly alike—nor should there be when it is considered that each of the hundreds of existing organizations have different requirements, problems and qualities. It has been clear for several years, however, that there was a need to develop standards which could be used as guides for the many health services. One physician (Bergy, 1961, pp. 159-161) related the need for recommended practices and standards for college health services to the requirements of justifying new programs or changes in policy to college administrations. According to this authority, provision of the "finest care" cannot be accomplished at his university because of budgetary and sociopolitical pressures as well as an apparent lack of confidence by administrative officials that an

optimum program for student health care could be developed. Accordingly, when new programs or policies are suggested, answers are required as justification to such questions as "What is the best we can do under the circumstances? What do they do at other schools? What are the recommended minimum standards for schools of our size and mission? What are we legally required to provide?" He also wrote that standards could protect the college health service from improper requests and presumptions by administrators. Such requests and expectations included the requirement for nurses to practice medicine or pharmacy or physicians to undertake tasks without proper equipment and facilities. Regretfully, it is probable that such situations exist; nevertheless, such justification for the development of standards and practices seems overly negative.

Standards and practices for a college health program were developed by the American College Health Association in 1964 after about five years of work and then revised in 1969. Each of the "Recommended Standards and Practices for College Health Program" was published in *The Journal of the American College Health Association* (October, 1964; October, 1969). The President of the American College Health Association, Dr. Robert W. Gage, described the "Recommended Standards" positively when he editorialized:

These standards are best seen as a statement of basic principles and relationships, interpreted in terms which are sufficiently specific to provide practical guidelines for program development. Health programs which are consistent with them may be considered sound, even if open to substantial improvement; programs which fail to meet all of the standards may have areas of great strength and may represent superb achievement in the face of limited resources. (Gage, 1969, p. 1)

The statement was addressed to the problem of developing standards that would be useful to a wide range of types of college health programs and did not pretend to represent an optimum program for any particular health service. He also indicated two definite trends in college health programs that require attention. One is the desire to develop a college health program which will serve the "entire institutional community." This includes students, student dependents, staff and faculty with special emphasis on environmental surveillance and health promotion. The second trend emphasizes the coordination of the health care resources of the institutional and extramural communities. This second trend would include industrial workers and residents of depressed and affluent areas alike. Such a population, according to Gage (1969, p. 1), would "create an ecological system which is a unique vehicle for studying human health problems and developing means for resolving them."

In discussing the 1969 statement of standards, the goals and objectives are listed in the introduction and

much importance was given them as a base from which to develop the statement of standards. For this reason as well as the need to establish a point of departure for the development of organizational objectives for the Student Health Service at the University of Florida, authoritative lists of goals and objectives of a comprehensive health program are reproduced below

### *Goals*

1. To promote and maintain those conditions which will permit and encourage each individual to realize optimum physical, emotional, intellectual, and social well-being.
2. To control those factors in the community and its environment which may compromise this well-being.
3. To guide the individual in the acceptance of health as a positive value in life.
4. To stimulate the capacity of the individual to make healthful adaptations to the environment.

### *Objectives*

1. Organizing staff and facilities for:
  - a. Prevention of health hazards and problems for all members of the academic community (including identification and recognition of potential problems prior to their development).
  - b. Early recognition of developing problems (including in the clinical area, pre-symptom diagnosis of potential illness and use of screening procedures).

- c. Prompt and effective remedial action in the presence of recognized health problems (for instance, high-quality care, readily available under conditions which encourage timely and appropriate use).
  - d. Rehabilitation of all members of the community who have health handicaps, acute or chronic, to maximum attainable restoration of well-being and function.
  - e. Education of the community for healthful living, including concern for both individual and community well-being. This is to encompass development of both content and methods for health education.
  - f. Control of environmental factors influencing health. This should include the elimination or control of noxious or harmful elements (physical and emotional) and the insurance of a creative climate which encourages development of health and well-being.
2. Encouraging use of resources under conditions which promote their effectiveness.
  3. Promoting participation among the components of the community (students, faculty, staff, administration, health services) in the interest of developing goals and objectives and of sharing satisfactions and problems, including the development of ethical standards for relationships which recognize the need to handle certain types of information with discretion and confidentiality.
  4. Recognition of the importance of the performance of research for its dynamic influence on the health program.
  5. Continuous program evaluation, including specific attention to high quality.
  6. Coordinating of health resources of the institution with those of the community beyond.
  7. Developing and promoting health career opportunities. ("Recommended Standards and Practices for a College Health Program," 1969, pp. 41-42)

According to the introduction of the "Recommended Standards" (1969, p. 41), there were two notable changes from the 1964 effort. First, the material was more effectively organized according to plan rather than written by independent authors interested in a particular discipline and then related by means of a very lengthy introduction. Second, most of the quantitative standards such as recommended doctor/patient and patient/bed ratios were omitted. Since there are such a vast number of variables which arise when comparing colleges, it was believed that comparison of such ratios was not very useful. The "Recommended Standards" (1969) were divided into five major parts: general information; health programs—services and activities; health personnel—qualifications, duties and education; physical plant; and business management.

In the first section, the importance of the philosophy of the institution as well as its goals and priorities were stressed. Since a health service is basically a supporting facility for the institution, it is obviously important to know the institution's goals as well as its philosophy concerning its responsibility for health care of the students and other members of the academic community. Also, the method in which the health service will relate to the administration of the institution should be clear. Every effort should be made to arrange for the health

service to relate with a sufficiently high level of the administration since the service should have the goal of supporting the whole institution. It is important that every effort be made to forecast as accurately as possible the numbers and composition of the population of the institutional community for whom the health service will be responsible, in order that appropriate planning may be accomplished by the health service. The forecast data should specifically indicate the various categories of students such as male, female, married, single, undergraduate, graduate, international, full-time or part-time status, and the expected growth rate of each category. It would also be useful to know the number of dependents of students, the number of staff and faculty and possibly their dependents, and similar information about any additional groups to be served, as well as the expected rate of increase in each of these categories. These data are especially important if the institution is responsible only for the health care of students but wish to time phase the acceptance of responsibility for health care for these latter categories as practicable.

It is desirable that the institution publish a specific statement regarding the health care responsibility it is accepting as well as a reasonably specific description of the health program to be developed. Normally, the aim

should be to include personal health service, environmental surveillance and control, and health education. It is also important to designate how this program will be supported, especially the sources of financial support. There are several possible sources such as general institutional funds, student fees or a combination of sources.

Experience indicates that assignment of complete responsibility for operating a college health program to one unit results in a much more successful program than if responsibility is split among more than one organizational unit. A more specific description of the previously mentioned three primary areas of responsibility of a college health service appears in the "Recommended Standards":

1. Personal health services: medical, dental and surgical care, including preventive, diagnostic, therapeutic, and rehabilitative services for both physical and emotional problems. It is important that these services focus attention not only upon individuals but upon total community health and welfare.
2. Environmental surveillance and control, including occupational medicine.
3. Education for health: This should include educational programs for individuals through which they may be motivated to healthful individual and community behavior. (1969, p. 45)

It is possible for one or more of these areas to be handled by a unit other than the college health service. In such cases, however, particular effort should be expended by the director of the health program to bring about effective

coordination with the units involved in any of these primary areas.

The director/coordinator of a college health program may range from a well-trained nurse to a physician depending primarily on the size of the program as well as the availability of qualified personnel. Of course, the desired qualifications for the director would be a well-qualified physician who has also demonstrated abilities as an effective administrator. Allegedly such a combination is rather difficult to find due primarily to a lack of experience and/or lack of interest in administration. There are obvious advantages of having a physician as director since he will have a keen appreciation of the medical problems faced and also probably be able to establish more rapport with medical personnel employed by the program. However, due to the difficult combination of ever more scarce resources and increased responsibilities, it is becoming critically important that the director be able to manage and allocate his scarce resources in a highly effective manner. Today it is almost a foregone conclusion that he will not be able to acquire all the resources that he would like to have. The director should be delegated the authority to make professional appointments and also to initiate and develop various activities in the health program with approval of the college administration. If his qualifications are

adequate and his duties warrant it, he should be awarded faculty rank. As in other areas, it is suggested that the director be responsible to an administrator as high in the college administration hierarchy as practical; however, the real need for this is closely related to the size and responsibilities of the health program. If a reasonably comprehensive health program exists, however, it is unwise to have the director responsible to the dean of students or other officials in student affairs. This does not mean that the director should not be required to coordinate with numerous departments in the college.

A very large portion of the "Recommended Standards" (1969, pp. 46-78) is devoted to a section entitled "Health Programs." In this section a very thorough description of various services and activities in a comprehensive college health program is provided. Here it is repeated that services in the three broad areas—"medical and other health services, including community-oriented preventive services; environmental health and safety; and education for healthful, personal and community living" (1969, p. 46)—should be offered regardless of size of the overall health program. Quite obviously, the degree of comprehensiveness will vary with the size of the institution and resources available. It is recommended, however, that when services cannot be provided, arrangements be made to utilize extramural

resources to satisfy various health care needs. The opinion is also offered that health should be viewed positively and not as simply a lack of disease. Rather it should reflect positive aspects of health such as physical, emotional, social, and intellectual vigor.

There should be outpatient facilities adequate to provide at least initial assistance for anyone eligible for the services irrespective of whether the person has contributed directly to the program. First impressions are important; therefore, service should be as courteous and prompt as possible and as thorough as practicable since outpatient treatment has an educational as well as clinical function. It should be possible for an eligible individual to make an appointment or to receive treatment on a "walk-in" basis. Normally the patient will see a nurse first; however, he should be allowed the choice of consulting only with a physician. In any case, it is necessary that the action of the nurse with respect to treatment and medication conform to the Nurse Practice Act. The facilities for outpatient service should be as close together as practicable and conveniently located to class areas and living areas of the students. If a choice must be made, close proximity to the academic area where students will be located during daytime hours is preferred. Facilities which have been designed and built specifically for a college health

program are preferred, so that treatment may be as efficient as possible.

Each college health program should include specific written plans which are to be implemented in cases of emergency or disaster. These plans should be thoroughly coordinated with other departments which have a direct concern. Also the plans should receive adequate publicity when appropriate.

If it is economically feasible, inpatient facilities should be provided for eligible members of the college health program. If there is generally a small need for such facilities, then the cost of the inpatient facilities and the support required will probably be prohibitively expensive. The health service should indicate the type of bed care available according to categories suggested by the "Recommended Standards":

- a. None
- b. Temporary day care until transfer can be arranged.
- c. Intermediate care, day and night, for observation or noncritical medical illness.
- d. General medical care without surgery.
- e. Complete general hospital care including surgery.  
(1969, p. 50)

Although it is difficult to be precise concerning bed/patient ratios, efficient size of units and other statistics due to varying philosophies of responsibility for

health care, the "Recommended Standards" (1969, p. 50) offer some suggestions. If the students are primarily resident students, five beds per thousand eligible subscribers are considered adequate. Experience has demonstrated that attempting to operate units of less than 15 to 20 beds will probably be inefficient and too expensive. The college health service has a responsibility of referring patients to an extramural hospital when required. With regard to this responsibility, there should be some arrangement to allow members of the health service staff to receive staff privileges in hospitals to which students are referred so that responsibility for the care of the patient may be retained.

The importance of establishing uniformity in reporting student morbidity and college health program activities has been recognized for several years (Herbolsheimer, *et al.*, 1961, pp. 196-210). When either outpatient or inpatient services are performed, it is vitally important that careful records be kept. Accurate records have great importance in an effective evaluation program which, in turn, is required to determine benefits for cost-benefit analysis. An even more important current aspect of record keeping is the necessity of maintaining strict confidentiality of information maintained in the patient's record. It is very important that staff and faculty respect professional and legal

obligations of the physician's maintenance of confidentiality of patient data. It has been further recommended that psychiatric records be kept separately from medical records and that the most careful precautions be taken to maintain their confidentiality. Although maintenance of confidentiality of medical records is extremely important, it is particularly so with respect to mental health records. This crucial importance derives from the facts that "because the nature of the treatment is such that there must be absolute trust between patient and therapist and because the content of the interview is concerned with the most intimate and personal details of the patient's life" (Farnsworth, 1964, p. 73).

Sound emotional health is generally recognized as an important requirement for high student achievement. One authority (Boynton, 1952, pp. 4-8) expressed it more strongly when she wrote: "Probably there is no field of medicine in the college age group in which better preventive medical work can be done than in the field of mental health." A college health program should provide assistance from its own staff or from extramural resources for those students who require assistance in coping with stresses which confront them. Provision of long-term therapy for disturbed students need not be an objective of the mental health program. Means for referring patients to extramural sources for longer-term therapy should be clear. It is also

important that close liaison be established between the mental health service and other offices which have a particular interest in mental health programs, such as counseling/guidance personnel, clergymen, and residence hall staff.

The responsibility for the athletic medicine program is normally charged to the college health service. The program may be divided into physical education, intramural sports, and intercollegiate athletics. Close coordination is required between the college health service and the physical education and athletic departments.

College students are susceptible to a wide range of dental difficulties; however, dental caries and periodontal problems are the two most prevalent problems. Dental emergency treatment as well as elements of a dental program related to public health and health education should be available to eligible persons if possible. Although there is much dental work which need not be provided by the college health service, arrangements should exist which will allow persons needing continuing treatment or dental treatment not available to be referred to appropriate specialists in the area. Dental health services may be divided into essential, optional and desirable services. According to the "Recommended Standards" (1969, pp. 64-65), essential dental services should be financed as part of the college

health program; whereas, optional services could be financed on the basis of prepaid insurance or fee-per-operation. Desirable services could be made available through a prepayment plan available through extramural sources.

It is suggested ("Recommended Standards," 1969, pp. 66-67) that rehabilitation services, including physical medicine, be available in the college health program to assist students who need the attention as a result of accidental illness, work or academic programs, as well as for those students who arrive at the college with some type of physical, emotional or social handicap. One person should be designated to coordinate the entire rehabilitation program.

Health promotion/preventive medicine is perhaps not considered as imperative as diagnostic, therapeutic and rehabilitative services; however, the long-term potential of health promotion/preventive medicine is extremely significant and should be a part of a comprehensive student health program. The "Recommended Standards" (1969, p. 68) acknowledges the particular importance of work in this area which might determine relationships between smoking and cardio-pulmonary disability, between diet and exercise and cardiovascular disability, and between drug abuse and emotional health.

Another area which is rapidly gaining public attention is environmental health and safety. Certainly an institution

should assume a certain amount of responsibility for the environmental health and safety of the members of its community; however, it should not be necessary for an institution to assume complete responsibility. A university, for example, should be able to share responsibility for controlling such environmental factors as sanitation, safety, industrial health, radiation control (health physics) and education for health and safety with local, state and federal departments as well as industry. The resources in the university community should be combined and, if possible, coordinated by one person who would be in charge of the environmental health and safety division. The "Recommended Standards" is quite specific about the responsibility and authority of this organizational unit:

- a. To maintain continuing surveillance of all environmental health and safety hazards on campus, attempting to anticipate, investigate, and describe all hazards before they become clinically important.
- b. To report findings to the central administration in accordance with existing environmental health and safety policies.
- c. To make recommendations for the control of hazards as they may arise or be anticipated.
- d. To furnish consultation to central administration, departments, and individuals on campus with respect to implementation of environmental health and safety policy and standards; to promote general interest in the elimination and control of hazards on campus.  
(1969, p. 69)

There should be very careful coordination of activities and recommendations made when necessary by the

person in charge of this division; however, it is the responsibility of the central administration to enforce the standards and policies recommended by environmental health and safety personnel.

If a college health program is to be comprehensive, attention must be given to staff, faculty and other employees of the institution. When attention is given to these groups, occupational health becomes an important part of the overall health program and the "Recommended Standards" has suggested that occupational health program objectives should be "to identify previously unrecognized illness, disability or other limitations; to assist in placing staff in work situations consistent with their physical and emotional capacities or limitation; to provide emergency or definitive care for work-connected injuries and illness; to establish a prevention program, including immunization, and standards for safe use of equipment; and to present an educational program concerning occupational hazards and stresses and means for avoiding or coping with them" (1969, p. 72).

One of the most important objectives of a student health service is to promote good health behavior among students. Providing a good health education would seem to be a normal approach; however, the student's time is thoroughly scheduled and it is difficult to compete successfully for his time for the purpose of formal health education programs. The best approach would seem to be to take

advantage of each possible situation to provide health education informally. Certainly each visit by the student to the student health service should be viewed as a possible teaching situation and some sense of the importance of good health practices may be instilled in the student by examples which are set (Farnsworth, 1964, pp. 7-8).

Research is a significant part of a student health program because it provides an excellent opportunity to observe, record and analyze various aspects of disease and other health problems under relatively well controlled conditions. To take advantage of such a situation, however, it is necessary to allow enough unscheduled time for the health staff member to pursue such endeavors. In this regard, it is very important that specific and acceptable policies concerning the use of research of students and others in the institutional community be clearly stated.

One area which deserves attention of all college health programs, regardless of size and comprehensiveness, is extramural resources. Every effort should be made to coordinate closely with and utilize as fully as possible all off-campus resources so that a reasonably comprehensive program can be developed without duplication. This is not a one-way proposition and on-campus resources should be offered to the off-campus community when possible. The "Recommended Standards" (1969, p. 78) indicates that a

potentially productive area for such cooperation is among colleges and universities whose proximity to one another will allow a consortium to be established.

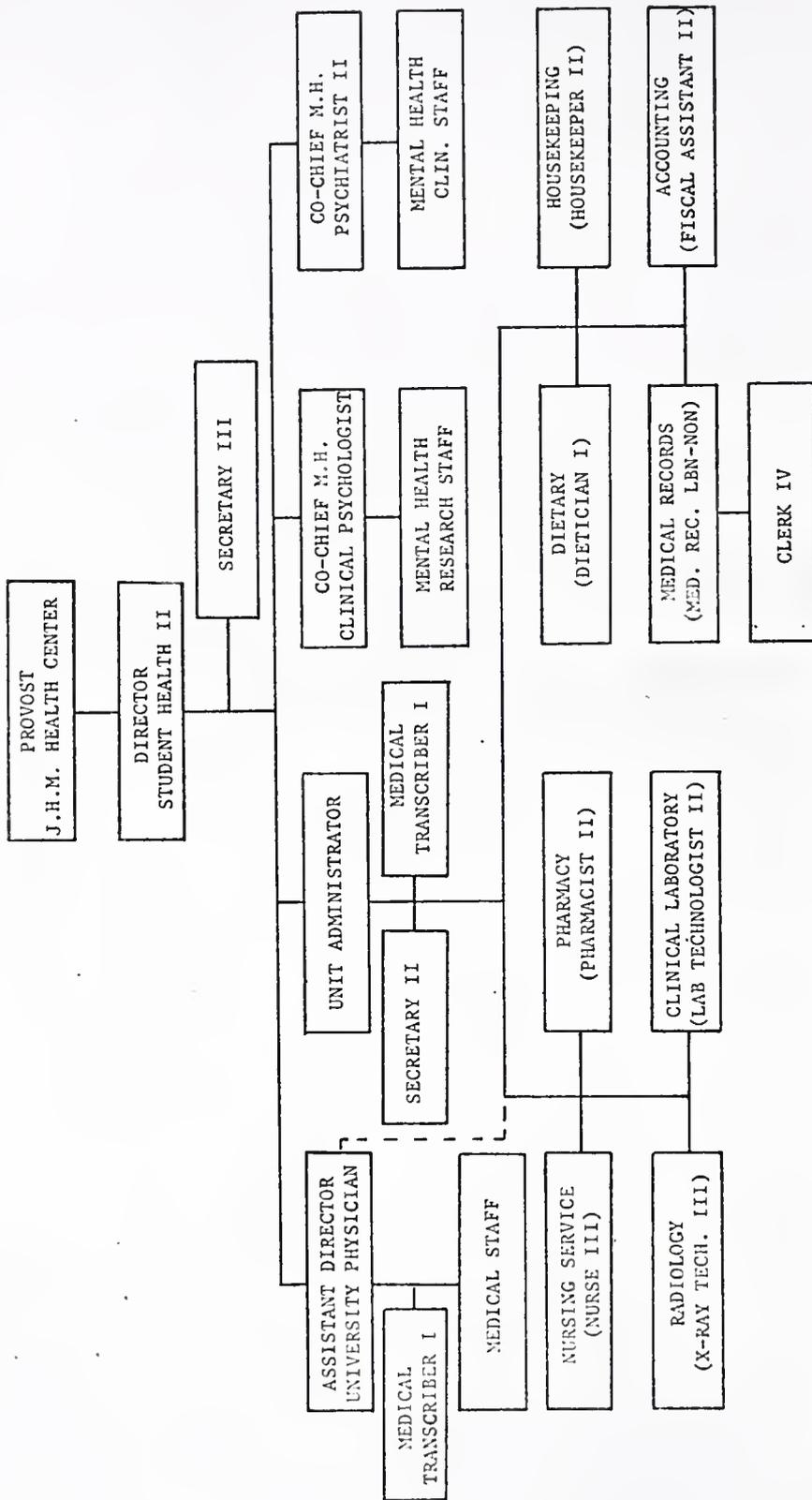
The "Recommended Standards" (1969, pp. 79-87) also provides information concerning (a) health personnel—qualifications, duties and education, (b) physical plant and (c) business management. However, the data are rather brief when compared to the section on health programs. Although the section on health programs was quite thorough and obviously represents much work, there is one rather serious weakness from the standpoint of PPBS. In order to perform cost-benefit analysis, it is necessary to compare the costs and benefits of various alternatives. To derive benefits, there must be a way of evaluating the results of various programs. More specifically, measures of effectiveness should be developed against which alternative program accomplishments can be compared. The need for selecting appropriate measures of effectiveness may suggest the need to revise program objectives on occasion. The development of objectives and measures of effectiveness or criteria has been described as an "interacting process" (Hatry, 1967, p. 5). A detailed discussion of this problem is required but will be reserved for the following chapter. The preceding discussion concerning health programs was rather all-inclusive; however, a description of the Student Health

Service at the University of Florida should precede any attempt to complete the program structure portion of a PPBS model representing this service.

*The University of Florida Student Health Service (SHS)*

The University of Florida Student Health Service (SHS) provides a wide range of services to students; however, personnel at the SHS are becoming involved more and more with health problems outside the university student community, according to the director (Coggins, 1970b). The organization chart for the SHS is shown in Chart I. The Infirmary is a 45-bed facility centrally located on the campus in which is provided a wide array of medical services including primary medical care, preventive medicine, health screening programs and mental health consultation and counseling.

Normally a student reports to the Infirmary with his problem and is directed to a nurse unless he insists on seeing only a physician. The nurse will take care of the complaint or refer the patient to a physician. These cases are categorized as "drop-ins" and represent an estimated 60 to 70 per cent of the patients. It is also possible to call in and receive an appointment. Unless an emergency exists, treatment will probably not be as prompt in such situations. Approximately 300-325 patients



Source: Student Health Service, University of Florida, Gainesville.

Chart 1. University of Florida, Student Health Service—October, 1969

per day are seen by nurses and/or physicians and about 90 per cent of the patient care is on an outpatient basis (Pritz, 1970a). Space for handling these and other problems is becoming very limited. This problem will be discussed in more detail in a following chapter.

Revenues for the SHS come essentially from student health fees which are currently authorized to operate the SHS. However, additional funds come from room and board at the Infirmary, medical supplies and drugs which are prescribed and furnished, charges for special medical procedures, earnings for services provided to the university and grant funds. The only funds coming from the university are given to support the preemployment evaluation of certain employees of the university and also to support environmental health activities. Otherwise, the SHS is completely self-supporting. Organizational lines of authority and responsibility are informal.

In practice, the Director, SHS, is accountable to the Provost of the J. Hillis Miller Health Center. He also coordinates closely with the Vice President for Student Affairs and, on occasion, coordinates directly with the President of the University.

The Director of the SHS (Coggins, 1970b) believes that four events which have occurred during the past ten years have affected the status of the SHS significantly.

First, the appointment in 1957 of the first full-time psychiatrist was an explicit commitment by the President of the University to the development of a Mental Health Program oriented toward public health. The long-term experience in the Public Health Service of the psychiatrist appointed led to the initiation of a Mental Health Research Project in 1959. Since that time, this first project and two later ones have been funded completely by federal grants in the amount of more than \$900,000. The objective of these projects was the development of a mental health program established on the principles of public health or community health. With this emphasis, there have been research studies into the social and psychological characteristics of students entering the University of Florida, with application of the findings to preventive mental health programs in the university environment. These projects also attracted psychology and personnel services trainees and these trainees brought with them the inquisitiveness of students. Second, a psychiatrist was appointed to head the clinical side of the Mental Health Program with a joint appointment in the Department of Psychiatry in the College of Medicine. The joint appointment carried with it an obligation to teach in the Department of Psychiatry as well as to perform clinical services for students. This arrangement also induced participation in SHS activities of

psychiatric residents and other staff members of the Department of Psychiatry. A third major event occurred in 1966 when administrative responsibility for the SHS was transferred to the J. Hillis Miller Health Center from the College of Physical Education and Health. The impact of this change was that the Provost of the Health Center would be administratively responsible for the SHS but the SHS would be an auxiliary funded primarily by student fees. Additionally, this change promoted understanding between personnel of the SHS and the many disciplines at the Health Center and brought about some limited interchange of personnel as consultants. The Director of the SHS has a joint appointment in the College of Medicine and this dual responsibility provides opportunities for him to present SHS problems to appropriate persons at the Health Center and to acquire needed consultation and assistance more easily than would otherwise be possible. The relationship has also included the use of medical and surgical residents as on-call physicians at night and on weekends at the SHS and this has served to reinforce the medical staff at the SHS as well as to stimulate discourse and interchange of ideas between the two groups. The fourth significant change was in 1968 when a commitment of its entire program to community orientation was made by the SHS, then at

full staff. This commitment was encouraged by the very favorable cost experience of such prepaid, prevention-oriented, health delivery programs as the Kaiser Permanente Program (U. S. Congress, 1969b, pp. 813-818, 934-989). The health section had established the groundwork; it was then logical to follow with the involvement of the physical health service in university community activities in the area of health care. The entire SHS staff was held responsible for involving themselves with students, administrative staff and faculty, for facing health issues outside their daily routines and for extending their commitment in appropriate areas to the non-university community. This, according to the Director, has been done. A more detailed description of the objectives and operation of the SHS is contained in a following chapter.

It is difficult to generalize concerning problems encountered by student health services at universities without a medical school and teaching hospital. In such a case, it is quite possible that a student health service might be more directly accountable to the Office of the Dean of Students which Farnsworth believes not particularly desirable (1964, pp. 9-10). Although there are difficulties at the University of Florida Student Health Service with regard to low salary scales compared to many other parts of the United States, the presence of the

medical school and teaching hospital at the University of Florida (and the associated opportunities for teaching and research) probably helps to attract young physicians with a wide range of interests and other health professionals from whom some personnel may be recruited to staff the SHS (Coggins, 1970b). The absence of similar facilities probably increases the problems of recruitment of adequate numbers of highly qualified personnel by other student health services.

## CHAPTER IV

### MEASUREMENT AND EVALUATION: THE PROBLEM AND SOME APPROACHES

It is popular to cite the "heart," or the "core," or the "most important aspect" of a management technique. Various aspects of the PPBS concept have been suggested as each being most important; however, it does not seem possible to attempt to prove conclusively that a particular part of the PPBS is more important than the other parts. Accordingly, no attempt will be made here to show that a specific part of PPBS is the *most* significant. Nevertheless, considerable direct and indirect evidence in the literature suggests that one phase of the PPBS, variously referred to as measurement of output effectiveness, program effectiveness, program evaluation and criteria, requires considerable attention, if the PPBS approach is to be successful (Lyden and Miller, 1967, Part IV; Novick, 1965, Part III; Schultze, 1968, Chapter 2; Grosse, 1969; Rivlin, 1969; McKean, 1968; Hatry, 1967).

Steiner (1965, p. 45) believes that selecting appropriate alternatives is an important part of PPBS but considers program budgeting to have a broader meaning including structural, analytical and informational elements.

As stated earlier, PPBS is end-product oriented from a structural standpoint and this should be reflected in the program structure. It is also important that an appropriate information system be developed in order to provide accurate, timely data which will assist in selecting correct alternatives. The element of program budgeting of main interest here, however, is the analytical. The "core" of this process is "a systematic examination of alternative courses of action and their implications" (Steiner, 1965, p. 46). He cites cost-benefit analysis, systems analysis, cost-effectiveness analysis and operations research as appropriate methods to use in order to compare costs and benefits of alternatives so that the correct alternative may be selected. From this point, Steiner's discussion says little (as do many other investigations) about the extreme difficulty of measuring benefits. The cost side of the problem is not simple, but it appears to be somewhat easier to allocate costs adequately than to measure output effectiveness acceptably. Several authorities have made keen observations about this problem; unfortunately, few approaches to solutions have been offered. It is probably true, as Knorr (1966, p. 12) points out, that monetary costs frequently receive too much emphasis and the outcome is monetary cost studies rather than cost-benefit studies. It seems possible, however, that this situation may exist because meaningful measures of non-monetary costs and especially benefits have not been developed.

*The Problem*

Effectiveness of programs is seldom easy to measure in any area, but it is obviously difficult to determine appropriate output-oriented criteria which may be used to measure output effectiveness in the health field. Rivlin (1969, pp. 913-914) gives three reasons for the measurement difficulty at HEW. First, it is difficult to determine just what will represent an appropriate measure or what the program should produce. Second, the objective in most instances in the health area is to improve the individual's ability to function properly and this, in many cases, requires the observer to follow the individual around which, of course, is generally impractical. Third, it is difficult to separate the effects caused by other factors. Also in discussing HEW, Grosse (1969, p. 1222) verifies some of the problems cited by Rivlin and states that, although PPBS has helped HEW somewhat, one of the greatest problems that still remains is "inadequate program evaluation."

In summary, there is considerable evidence in literature relating experiences of most of the agencies of the Federal Government with PPBS since 1965 which suggests that one of the greatest impediments to a successful PPBS is the lack of development of accurate and meaningful measures of program output or, in relatively rare cases where measures are developed, the difficulty of gaining the required information (U. S. Congress, 1969a).

White (U. S. Congress, 1969b, pp. 352-53) stated that although more than \$45 billion are spent annually on medical care in this country only \$20 million, or less than 0.05 per cent, are spent developing and gathering data which would assist in evaluating the effectiveness of the health care. It has since been estimated that the monetary outlay for medical care in 1969 soared to about \$63 billion. At that rate of increase, the amount spent on health care will be \$200 billion early in the 1980's (Faltermayer, 1970, p. 81). Nevertheless, there are few signs that efforts to evaluate the effectiveness of health care are increasing as impressively as costs.

It has been mentioned earlier that a PPBS is output oriented but this point of output orientation needs to be stressed when discussing evaluation. Initially and when other data are not available, information such as number of patients examined and number of facilities available may be used; however, increases or decreases in such statistics do not signify much concerning the effectiveness of the health care. Similarly, discovery and treatment of an increased number of cases of a particular disease may not indicate that the effectiveness of the prevention program is declining but that the effectiveness of diagnostic procedures is increasing.

*Some Approaches to the Problem*

*The Health Index Approach*

It has been suggested that it would be useful to have a health index similar to the GNP that might be able to blend together into one number such items as "the days of healthful living lost each year by the chronically and acutely ill, the days of life lost through death that comes too soon and all the impairment suffered for lack of medical treatment and advice" (Linder, 1968, p. 360). The same source regretfully reports, however, that a single theory and a common unit, like the dollar of the economist, which would be needed to construct a useful index is not yet available. Linder (1968, p. 361) does offer some advice gained in developing the National Health Survey at the National Center for Health Statistics. As yet there appears to be no single group of data which would satisfy all organizations since their views and desires for information differ. There are several problems associated with collecting data from physicians and hospitals. Content of forms is not standard, patients seeing more than one physician may have overlapping treatment and records, and many ill people may not see physicians or seek medical care at all. For these reasons, it is better to attempt to gain desired information from the individual. Although he is not a diagnostician, he is very familiar with his medical experiences. Data may be collected by means of interview

or directly through physical examination. In any event great reliance has been placed on population sampling as a very useful technique to use to gain data on the health of the population of the United States. Some data such as number of patients, average length of hospital stay, costs of hospitalization, insurance and the like, can best be collected from institutions. A measure of illness would be useful if it could be done properly and Linder (1969, p. 362) believes that possibly the most comprehensive category is "number of days of restricted activity." Certainly there are several other categories that could be measured and the choice depends essentially on the type of data desired.

White (U. S. Congress, 1969b, pp. 353-54) discusses three points of view related to the types of personal health data required for different purposes. One view pertains to the individual patient and his specific difficulties. This view is also taken by the clinician and provides traditional diagnostic information. Personnel in the health services should understand that one of their important objectives should be to assist individuals with their health problems. A second view might be termed an institutional viewpoint and is usually taken by those accountable for the operation of institutions such as hospitals, physicians' practices, voluntary agencies, insurance prepayment plans and the like. The difficulty with data collected from such sources stems

from the fact that the so-called population at risk or denominator (i.e., potential population susceptible to health problems) is not known. Nor is complete information available on those represented in the denominator, except in those instances where health care assistance was sought. Third, a point of view may be taken which is directed toward a particular community or specifically defined population which may be delineated geographically, politically, organizationally and in other similar ways. Only in this manner can an understanding of the ecology of medical care be developed.

Returning to the development of a health index, Sullivan (1966) provides a thorough discussion of many conceptual problems that exist in such an undertaking and, at the same time, cites quantities of important literature on the subject. Because of the objectivity involved, mortality rates have generally been considered useful in the development of health indexes; however, after declining from 1900 to 1954, mortality rates stabilized. Moriyama (1964) points out that mortality will probably remain at the current level until some impressive advances are made which will decrease accidents and chronic disease, but he cautions that stability in mortality rates does not mean that changes are not occurring in the other health areas. Interest in both public and private health services has increased considerably and this interest is directed to such

areas as reduced productivity, prolonged disability and the need for health care. Sullivan (1966, p. 2) believes that an index constructed for the purpose of appraising trends in the health conditions of the population of the United States should (1) provide health information about the living as well as citing death rates and (2) be developed so that its various elements may be critically analyzed. Further, the development of the index calls for specific concepts to be developed or selected and then defined, measured and finally combined into a single index. As mentioned, mortality is rather specific and few problems exist in collecting these data, except with regard to adequacy and accuracy. On the other hand, when collecting data related to morbidity, problems arise in determining which data will be useful and should be selected and which can be measured. Certainly it has become clear that measuring health care effectiveness requires morbidity rates and other health information about the living in addition to the mortality rate which has been used almost exclusively in the past to indicate health levels.

There are objections to "negative measures" of health. Two subcommittees appointed by the U. S. National Committee on Vital and Health Statistics (1958, 1960) attempted to find or develop measurable indicators which would show health levels in terms of positive health. Neither group was able to develop such criteria; however,

their reports demonstrated the very diverse opinions of the nature of positive health.

Since health care advances might actually increase the prevalence of disease, Sanders (1964) attempts to measure health levels in terms of "functional adequacy" which would involve the determination of the number of days an individual could fulfill a particular social role judged appropriate for his sex and age.

Chiang (1965) has suggested a health index which combines data from probabilistic models of frequency of illness, the duration of illness and annual mortality according to monthly distribution. According to Sullivan (1966, p. 4), neither Sanders nor Chiang provides a specific definition of variables which should be measured.

After some discussion, Sullivan concludes that negative measures appear to be most appropriate when studying health problems of groups and then proceeds to identify a schema of health levels developed by a Work Party of the American Public Health Association. This schema is reproduced below:

1. *Mortality*. The conservation of life is of paramount importance at this stage.
2. *Serious morbidity*. The goals at this stage are prevention, control, and treatment of conditions that disable, cripple, or produce chronic illness.
3. *Minor morbidity*. Concern is focused here on minor illnesses and conditions that cause inconvenience, economic loss, personal tension, annoyance, or impaired social relations.

4. *Positive health.* This stage involves programs intended to help all persons attain physical vigor, mental well being, and constructive and wholesome relations with others in a safe and pleasant environment that promotes longevity and happiness. (Sullivan, 1966, p. 7)

In 1960 the Committee thought that the United States was ready to begin health activities only at the third stage and that mortality and serious morbidity were still of primary concern. Sullivan believes that this schema represents a hierarchy of goals on which formation of official policy, conduct of medical care and daily decision-making in health matters may be based.

There have been several attempts to identify and classify various concepts of morbidity. Sullivan (1966, p. 8) points out that all attempts are included in some combinations of the following three types of evidence: (1) clinical, (2) subjective and (3) behavioral. Clinical evidence, according to Sullivan, "consists of signs, symptoms, laboratory test results, and observations of tissue pathology which have been evaluated by a physician and organized according to diagnostic categories of syndromes" (1966, p. 8). He cites several problems which occur when using clinical data to measure morbidity, one of which is that potential sources of clinical data such as private physicians, hospitals and even insurance systems will be reporting on a limited segment of the population. Additionally, if this type of information is gained from the

individual, it is necessary to assure that a valid diagnosis was given to the person and that he reiterated the data correctly. It is clear that the validity and reliability of clinical diagnoses gained through interviews with the patient contain some biases not included in clinically recorded diagnoses. After a reasonably thorough discussion of the measurement of morbidity with clinical evidence, Sullivan (1966, p. 10) concludes that other sources of evidence may better indicate the effectiveness of a health program.

Sullivan says subjective evidence of morbidity "refers to indicants such as an individual's report of symptoms or feelings of illness or his opinion of his health status" (1966, p. 9). These kinds of data have been used as a measure of morbidity but have raised many questions. Several studies have shown that such reports differ from physicians' reports of the same situations but the causes for the variances or, indeed, all the possible variances have not been determined (Sullivan, 1968, pp. 9-10). Until such discrepancies can be satisfactorily explained, this measure of morbidity presents some potential pitfalls.

According to Sullivan (1966, p. 10), behavioral evidence of morbidity "includes such indications as absenteeism, restriction of specified activities, medical expenditures, seeking medical care, or institutional confinement." This type of evidence seems to have distinct

advantages over the two types previously cited. Since this evidence is usually not recorded as it occurs, it is gained through interviews or from the examination of records. Sullivan thinks that behavioral evidence is more adaptable to survey measurement techniques and yet is less ambiguous than clinical evidence. The primary reason for this derives from the fact that "public observable events" are used as referents. By using the survey technique, morbidity may be measured regardless of whether medical treatment is sought. Also absence from a major activity because of "feeling ill," e.g., attending school, is probably a better indication of morbidity than simply feeling ill. There is still a degree of subjectivity here, however, and the possible bias in the data collected in this manner must be recognized.

Drawing from the experiences of the Health Interview Survey of the National Center for Health Statistics, Sullivan (1966, p. 11) discusses some morbidity concepts which are based on various types of disability that developed from interviews in this survey. Most of these surveys are designed to learn specific information about individuals but classify the individuals from various viewpoints. He suggests that these concepts of morbidity be combined in order to develop a single concept of morbidity according to disability. He considers a single day

and then classifies the disabled for that day according to the following mutually exclusive categories:

1. Persons confined to resident institutions because of ill health. This category should include only those unable to leave the institution for health reasons, and exclude residents free to come and go, prisoners confined for punishment, well children living in institutions, and similar individuals not disabled. Persons excluded should be classified according to the following categories.
2. Persons—not classified in (1)—with serious continuing limitation of mobility. This might be defined to include all persons whose mobility limitations are classified by the respondent as "Confined to the house," and "Cannot get around alone." Its measurement would require that the limitation of mobility classification be used for all persons not classified in (1) above. . . .
3. Persons—not classified in (1) or (2)—with serious continuing activity limitation. This category might be defined in terms of the two activity limitation categories, "Persons unable to carry on the major activity for their group" and "Persons limited in the amount or kind of major activity performed." Measurement would require classification of degree of limitation of activity for all persons not classified in (1) or (2) above. . . .
4. Persons—not classified in (1), (2), or (3) above—who are reported as restricting their usual activities for the day in question. This would correspond to the "day of restricted activity" concept used in the Health Interview Survey, but should be applied only to persons whose usual activities or mobility are not already seriously restricted by continuing conditions. It would include those hospitalized, bed-disabled, or absent from work or school because of transient conditions, as well as those who cut down on recreational or other activities on the given day. When desired this category could be further subdivided according to these varieties of disability. . . . (Sullivan, 1966, p. 12)

Sullivan believes these measures may be broadened or made more narrow by altering the definition of disability

from its present form in (2), (3) and (4). The categories must continue to remain mutually exclusive, however. Since the period is one day and the categories are mutually exclusive, the number of persons in the individual categories may be added and the total would theoretically measure the individuals disabled on a particular day. This single figure would then represent the effect of morbidity on the population for one day and, therefore, a unified concept of morbidity. For longer periods measurement would be accomplished in a different way. Variable duration of episodes would have to be considered if annual rates, for example, were to have meaning. Episodes could be measured in terms of days and they are mutually exclusive; therefore, Sullivan thinks numbers in a particular category could be summed to develop a useful estimate of the total days of disability in a particular category for the period of a year or other desirable period. He suggests that disability rates for one year for categories (1), (2) and (3) may be derived by multiplying an estimated "annual average prevalence of persons so disabled" by 365. This figure would probably be less desirable for a university setting where the whole population is typically not present for the complete year. Current survey methods may be used for category (4); however, persons in categories (2) and (3) should be omitted to avoid double counting. Each episode is automatically weighted relative to its duration when this approach is used.

Sullivan (1966, p. 14) states that reliability and validity are extremely important in the measurement of morbidity in terms of disability because a social rather than a medical or biological measurement is being made. Length of the recall period, variations of interviewers, stress placed upon particular survey items, duration and severity of the episodes of ill health are important to reliability. Validity of the acquired data will probably be questioned at least until several studies are performed and results compared. However, information gained from small groups might be useful in validating and interpreting disability computations for larger populations. With regard to a student population, however, it may be appropriate to use only selected parts of Sullivan's overall approach and the development of an index may not be necessary.

#### *The Five D's Approach*

Haggerty (1967, p. 62) uses the 5 D's (death, disability, disease, distress and dissatisfaction), originally developed by Elinson (1963), as the ultimate criteria or output to be measured in any study relating to the evaluation of health care. However, he stresses that there are inputs (independent variables) and intervening factors which are also part of the medical process and should be measured along with the 5 D's. He represents this task diagrammatically as follows:

<u>Input</u>	<u>Intervening Factors</u>	<u>Ultimate Criteria or Output</u>
Medical Care	Utilization	Death
Health Personnel	Appointment	Disability
Facilities	keeping	Disease
Patients	Compliance with	Distress
Disease	therapy	Dissatisfaction
Organization of	Expenditures	
care	Attitudes	
Financing		

(Haggerty, 1967, p. 62)

Changes in the inputs can have very obvious effects on both intervening factors and ultimate criteria; however, Haggerty also suggests that changes in intervening factors which might cancel each other could result in an unchanged output. Accordingly, if a thorough analysis is to be made of the output, it seems important to be familiar with as many interrelations between inputs, intervening factors, and output as possible. This will require definitions in all three areas and cause difficult tasks, but effective analysis seems to require it. The accuracy with which inputs, intervening factors and especially output can be measured will depend on the nature of the problem being addressed. Unfortunately, Haggerty does not discuss the problem of measurement in much detail.

#### *The Economic Approach*

Fein (1967, pp. 44-50) takes the economist's view and stresses the need to compare various programs and suggests accomplishing this task by comparing cost-benefit ratios.

He recognizes that measuring health benefits is difficult and suggests the need to use proxy measures wisely. He then addresses the problem of developing a common unit of measurement so that outputs may be compared and chooses a monetary unit such as the dollar as a possible common measure. He then goes one step further and suggests the use of measuring benefits of output in terms of increased earning power expressed in dollars. The benefits so measured become the numerator and the cost of the program the denominator. All that is left is to compare the benefit-cost ratios of alternative programs. At one point Fein (1967, p. 48) suggests that the objective is simply one of maximizing the benefit-cost ratio. Later, in discussing some of the weaknesses of the approach, he mentions the importance of "the effectiveness of resources at the margin" and warns not to "rely totally on the benefit-cost ratio" (Fein, 1967, p. 50). McKean (1968, pp. 138-145) is a great supporter of cost-benefit (or benefit-cost) analysis but is quite specific in discussing the pitfalls in terms of "criterion or test of preferredness." He explains that in many cases it is not a question of maximizing the rate but, rather determining if the additional benefits gained are worth the extra cost. For example, the question might not be one of maximizing a cost-benefit ratio but one of determining if it is worth the \$30,000 required to keep a leukemic child alive for

one year. A doctor at one hospital has said that 75 per cent of work being performed could be accomplished for 50 per cent of the current cost if many of these expensive special treatments were deactivated, but he hastened to add that such action was unthinkable (Mecklin, 1970, p. 98). Both Fein and McKean generally agree, however, that cost-benefit analysis provides a very effective framework within which alternatives may be considered. The approach generally causes a more systematic analysis of possible alternatives and frequently exposes the areas of disagreement so that they can be discussed more effectively. Cost-benefit analysis is a tool and should be considered as such. In many situations it appears to be useful.

#### *The PPBS Approach*

Hatry (1967) has provided some of the most useful information by suggesting specific criteria (or measures of effectiveness) which may be used in evaluating alternative proposals for health programs as well as for other programs. Almost as useful is his discussion of the criterion problem in general and of the qualifications and warnings in particular.

He more or less equates "goals," "aims," "purposes," "missions," "functions" and "objectives" and believes that "criteria" and "measures of effectiveness" or "output measures" have equivalent meaning. All criteria for program

analyses should be relevant, should cover all major effects regarding objectives and be capable of meaningful quantification. Hatry thinks it is difficult if not impossible to meet all three requirements but stresses the importance of meeting at least those requirements for relevance and coverage. As a matter of fact, he believes there has been too much effort to discuss program output in terms of monetary amounts since many governmental objectives are non-monetary in nature and, further, that attempts to force criteria into some common measure is not particularly worthwhile (1967, p. 8).

Hatry points out several qualifications regarding criteria which seem very useful. For example, when objectives are stated in different ways, there is generally a requirement to reword the criteria since there are very obvious relationships between objectives and criteria. Just as objectives are usually more general in nature at higher levels, so too are criteria related to various levels of specificity. At times it may be necessary to use "proxy," "substitute" or "indirect" measures, e.g., attendance of students may be used as a substitute for more appropriate measures of a student health level. This does not mean that ill students should attend school so that a high level of student health is indicated. Effective analysis of a program will generally require more than one criterion

because each criterion will probably contain some aspects not contained in the other criteria. For example, the single criterion of prevention of a particular disease would probably result in too many limitations on individuals, too high a cost and the like. Essentially, the same criteria may apply to different programs being analyzed. Such inter-relationships need not be emphasized unless a situation has particular relevance to the decision-making process. All criteria should be carefully defined by specifying such elements as persons involved, relevant time periods, and geographical limits.

Criteria may be expressed in terms of absolute numbers, averages, rates, comparison of magnitudes, total numbers, reduction or a combination of criteria into an index. In all cases, care should be exercised so that relevant data will not be hidden because of the particular criterion used.

Since a multiyear program and financial plan is an important element of PPBS, it should be remembered that the magnitude of the criteria must be estimated for each year of the financial plan. The accuracy of the estimates can be extremely important since an alternative course of action might be chosen because of apparent long-range benefits.

It is theoretically possible to translate all non-monetary criteria into monetary terms; however, Hatry (1967,

p. 16) believes that such a translation sometimes faces some extremely difficult obstacles and will represent the opinion of only one group at a particular point in time. It might be more realistic to follow expert counsel and "try to measure those things that are measurable and, insofar as possible, to define those things that are not, leaving to the responsible decision-makers the job of making the difficult judgments about the imponderables" (Enthoven, 1967, p. 9). Measurement of costs can also become complex when it is necessary to distinguish between "program costs" and "program monetary effects"; "direct versus indirect" costs and "primary versus secondary" costs. If discounting procedures are involved, then an appropriate discount rate must be determined. Discount rates that have been suggested have typically varied from 4 to 10 per cent.

Also when making decisions about programs, risk and uncertainty must be considered as well as political considerations. These factors should be quantified if possible but, when not possible, various aspects of the situation should be thoroughly portrayed for the decision-maker. If it has not already become apparent, then the fact that criteria will be difficult to measure should be emphasized now. Nevertheless, there are several actions that can be taken when data are less than desirable or when criteria are difficult to measure. Desired information may

be determined and arrangements to gather the desired data for the future may be made. In the meantime, estimates derived from judgment alone may be made, experts may be asked to use an arbitrary scale and assign values to criteria related to the various alternatives, survey techniques may be used, or proxy criteria may be required.

Intangibles promise to be present in the future, especially in the health care field; however, continual attempts to improve data and sharpen criteria should lead to more effective planning and decision-making with regard to the allocation of scarce resources.

Finally, Hatry lists objectives, subobjectives and criteria specifically related to the health care:

Objective: To provide for the physical and mental health of the citizenry, including reduction of the number, length, and severity of illnesses and disabilities.

1. Incidence of illness and prevalence. . . .
2. Annual mortality rates by major cause and for total population.
3. Life expectancy by age groups.
4. Average number of days of restricted activity, bed confinement, and medically attended days per person per year. (Such terms as "restricted activity" need to be clearly and thoroughly defined. Also, probably more than one level of severity of illness should be identified.)
5. Average number of workdays per person lost due to illness per year.
6. Total and per capita number of school days lost owing to illness per year.

7. Number of illnesses prevented, deaths averted, and restricted-activity days averted per year as compared with the base. . . .
8. Average number of days of restricted activity, of bed confinement and of medically attended days per illness per year.
9. Number and per cent of patients "cured" (of specific types of illnesses and various degrees of cure).
10. Some measure of the average degree of pain and suffering per illness. (Though there seems to be no such measure currently in use, some rough index. . . . could probably be developed.)
11. Some measure, perhaps from a sampling of experts and of patients, as to the average amount of unpleasantness (including consideration of the environment in the care area) associated with the care and cure of illnesses.
12. Number of per cent of persons with aftereffects, of different degrees, after "cure."
13. Number of per cent of persons needing but unable to afford "appropriate health care"—both before receiving public assistance and after. . . .
14. Number or per cent of persons needing but unable to receive "appropriate health care" because of insufficient facilities or services.
15. Some measure of the overall "vigor," the positive health, of the populace. . . . Meaningful measures are needed.

*Notes*

- a. A number of subobjectives can be identified for this major program area. Those subobjectives and the criteria that attempt to measure each are as follows:
  1. Prevention of illness—criteria 1 through 7.
  2. "Cure" of patient when illness occurs including reduction of its duration—criteria 1 through 9.
  3. Reduction of unpleasantness, suffering, anxiety, etc., associated with illness—criteria 10 and 11.

4. Reduction of aftereffects—criterion 12.
5. Making necessary health care available to the "needy"—criteria 13 and 14. (Hatry, 1967, pp. 24-27)

*The Chargeable Health Impairment Unit (CHIMPU) Approach*

Probably the most recent suggestions for the evaluation of college health services were developed by DuBois (1970) in the form of a working paper to be used as a basis for discussion by the Task Force on Administration of Health Services for the Fifth National Conference on Health in College Communities. He introduces the concept of chargeable health impairment units (chargeable to college health services) in which health impairment is "used to express the concepts of socially dysfunctional illness, personal health impairment and disability" (1970, p. 183).

As mentioned earlier, university administrations take varied views concerning the degree of responsibility for the provision of health care which the university should assume. In view of a continuum of recognition of responsibility and involvement ranging from none to complete, DuBois (1970, pp. 184-185) has constructed "a typology of health service systems at colleges and universities" (see Table 2). There are two dimensions to this typology. One relates to the level of service commitment and the other to the population to be served. The first level of the service commitment is limited to emergency first-aid required by

TABLE 2

A Typology of Health Service Systems Associated  
with College Communities

Class of Service Commitment	Scope of Population Commitment		
	Students Only	Students, Faculty, Staff and Dependents	Students, Faculty, Staff, Dependents and College Community
Class 1 Focused on control of present and future health impairment	Student health service class 1	College health service class 1	College community health service class 1
Class 2 Focused primarily on control of present illness	Student health service class 2	College health service class 2	College community health service class 2
Class 3 Emergency needs (First-aid service)	Students first-aid service	College first-aid service	College community first-aid service

Source: DuBois, 1970, p. 185.

campus accidents and medical emergencies; at the second level, responsibility to control current illness in the student population is recognized; and, at the third level, the university accepts responsibility to influence present and future illness. With regard to the population to be served, one range includes full-time students and occasionally part-time and/or special students; the second range includes student dependents, staff and faculty and their dependents, in addition to those students in the first range; and to the first two ranges, the college community is added to form the third range. In a small college town, this could represent the organizational base for the health service system of the entire town. In other cases, the college health service forms a nucleus around which health service systems may be developed.

DuBois (1970, pp. 185-186) suggests that a health service system should be evaluated on the basis of its end result or objective, e.g., "to control health impairment." He explains that direct measurement is preferred but very difficult to accomplish since epidemiology and medical treatment are based upon probability theory. When incidence or severity of health problems are not observed statistically over population bases, then reliable predictions with respect to the frequency or seriousness of health problems cannot be made. Therefore, adequately reliable measures of health

problems will probably not be possible until the population at risk (or susceptible to health problems) is known. Additional problems develop due to the episodic, fee-for-service situation which exists. For example, a person may be stricken with the same health problem on two or three occasions and be treated by two or three physicians. Therefore, responsibility for the progress or welfare of the patient cannot be assigned to a particular physician or institution. Accordingly, the effectiveness of the health care received by the patient cannot be evaluated reliably. Effectiveness of health care systems of some institutions that have known populations for whose care they are responsible could possibly be evaluated more reliably. Since nonspecific populations have represented the norm in the past, indirect measurement of effectiveness has been the principal method of evaluating health care effectiveness. One of the most reliable indirect measures has been immunization. However, one of the most popular—although unreliable—measures has been the number of physician visits per time period (DuBois, 1970, p. 186). If this last measure is to be reliable, it must be assumed that all such visits improve the condition of the patient. Such an assumption probably cannot be supported. On occasion, accreditation and certification standards and managerial standards have been used to evaluate health care effectiveness; however, specific and effective performance cannot necessarily

be presumed to follow the meeting of standards unless the standards are performance standards.

DuBois (1970, p. 187) proceeds to develop "an evaluative model for college health service systems." He points out that a college health service has the advantage of having a fairly stable and identifiable population at risk. Although a group of students is arriving and one is departing each registration, the population is still quite stable. If responsibility for staff and faculty are assumed, this group may be considered separate from the students and also represent a reasonably stable population at risk. In measuring the effectiveness of Class 1 and Class 2 systems, DuBois suggests both direct and indirect measures. In the category of direct measures of control over health impairment, he deals with the concept of chargeability or attributability of deaths, disease incidents, and severity of chargeable health impairment. He suggests expressing health in terms of days of impairment, degree of impairment and degree of chargeability. He lists the following example of a person who contracted venereal disease which caused 37 days of impairment due to reinfection and additional problems (1970, pp. 188-189). The rates of impairment were 30 per cent for five days and 10 per cent for the remaining 32 days. Further, it was estimated that the first five days should be chargeable to the college health service at the rate of

20 per cent and the remaining 32 days chargeable at the rate of 50 per cent because of the ineffectiveness of the system which was reflected by the reinfection. Initially 4.7 man days of impairment were calculated as follows:  $(5 \times .3) + (32 \times .1) = 4.7$ . This figure then should be multiplied by .46 as follows to account for the degree of chargeability:  $(5/37 \times .2) + (32/37 \times .5) = 17/37 = .46$ . The chargeable health impairment units (CHIMPU) then becomes 2.16 which is the result of multiplying the man days of impairment by the chargeability factor of  $4.7 \times .46 = 2.16$  CHIMPU. Since the CHIMPU is a measure of the total problem not controlled, effectiveness could be measured by subtracting this number from some number of CHIMPU judged to be normal for the particular health system. Also the change in numbers of CHIMPU for selected periods of time supposedly would provide a measure of effectiveness (DuBois, 1970, p. 189).

The CHIMPU approach is imaginative but some possible problems of implementation seem to exist. Gage (1970, p. 179) points out that some ailments such as appendicitis have no effective cure and charging such a health impairment to a health service would seem inappropriate. On the other hand, charging peritonitis from appendiceal rupture could be charged since it may have resulted from ineffective health care in the form of a lack of patient education or clinical discernment by health professionals. There appear to be many such areas

where accurate categorization by degree of chargeability would seem very difficult. He also explains that measuring the effectiveness of environmental surveillance programs would be quite difficult if the CHIMPU approach were followed. It would also seem difficult to establish a standard acceptable for national application which would describe the degree of chargeability to be applied in various cases. Although it is not necessary that a system of evaluation be able to measure everything with the utmost accuracy to be acceptable, these very formidable problems associated with the CHIMPU approach need to be recognized and their difficulty appreciated.

These problems of measurement of program effectiveness exist for all organizations; however, the characteristics of a college student health service would seem to allow it to deal with the problems more effectively than most. This situation derives primarily from the facts that the student health service can identify the population at risk for which it is responsible and, although some changes in the composition of the population occur periodically, there exists normally a relatively high degree of stability.

## CHAPTER V

### THE APPLICATION OF PPBS TO A UNIVERSITY STUDENT HEALTH SERVICE: A MODEL

A program structure for the Student Health Service at the University of Florida is developed in this chapter. The term "model" is used because it is more commonly understood; however, in PPBS terms this is a program structure with program categories, program subcategories and program elements.

There were several approaches to the problem of developing the model and two were given primary consideration: (1) the writer could interview members of the SHS staff in depth and from this information develop a program structure which would show accurately the SHS operation in a way consistent with the PPBS approach and (2) the writer could work closely with SHS personnel and provide appropriate and continuing guidance with respect to the PPBS approach but allow the SHS personnel to develop the program structure. The second approach was chosen for a number of reasons. First, it seemed too presumptuous to believe that a program structure that would be truly indicative of all the specialized and complex health care procedures performed at the SHS could be effectively developed by one

not qualified in and with limited knowledge of health care procedures on the basis of a relatively brief period of interviews. Second, an interdisciplinary task force, small enough to work efficiently, was formed by the Director of the Student Health Service in July, 1969, for the purposes of (1) using systems analysis techniques as aids in developing long range goals for the SHS and (2) using any appropriate information which might be developed by the above means to support the plans and design for new physical facilities for the SHS (Coggins, 1969, p. 1). This task force appeared to have the capability to develop an effective program structure. A further advantage to the writer was that he was invited to become a member of the group. Third, since several members of the task force were SHS personnel, knowledge concerning PPBS and capability to handle various specific aspects required by the PPBS approach could be developed within the organization. Members of the task force were the Director of the SHS who is a physician; another physician whose areas of particular interest are preventive medicine, polyphasic screening or health testing procedures and the use of computers in health care; a clinical psychologist and a psychiatrist who were co-directors of the Mental Health Service of the SHS; the assistant in administration who also prepares the budget for the SHS; the chief nurse; an industrial engineering professor who

is not a member of the SHS staff; a student; and the writer. The final program structure was about the fifth effort and was basically prepared by the Director of the SHS and the writer although many of the ideas, several of the objectives and a considerable portion of the program structure were the result of the contributions of members of the task force, particularly the Director, the physician, the clinical psychologist and the assistant in administration.

The memorandum which established the task force also provided considerable insight into the philosophy and plans of the Director regarding the SHS. He wrote, in part:

The increase in services rendered here is not explained simply by the regular annual increases in size of the student body, but also reflects the increasing expectation of the students of what a health care system should provide.

Florida students are asking for more health care each year, both for themselves and their dependents. Their requests are generally reasonable ones, and they even indicate an awareness and need of preventive functions such as pre-marital examination and counseling, obesity control, and early treatment of borderline high blood pressure, to mention three frequent examples. There is no health care facility in this country that truly provides a total service for its clientele in one building or one group of buildings, or within one organizational framework. The nearest approach to such a spectrum of services is that of the prepaid medical care system of the Kaiser-Permanente operations on the West Coast. Although Student Health Services should probably never attempt to provide such a broad spectrum of services, it is noteworthy that we are also a prepaid health care system in which the cost of services to high users is borne by the low users to a considerable extent. It is this feature alone which has enabled this Student Health Service to progress as far as it has in providing a wide spectrum of medical services for the student.

It will be necessary for this task force to view health services as a commodity and to develop a satisfactory unit of measurement of this commodity. This unit of reference is alien to those of us who provide the services because we almost always view our professional activities in that special aura which we consider exclusive to the patient-doctor or patient-nurse relationship. The physicians among us will also have to look past the traditional office contact with the patient, or the bedside visit in the Infirmary and consider all aspects of the university environment in which the student is at risk for illness-inducing factors so that he can be aware of these risks and at the very least make intelligent choices. In brief, we should consider in our planning that the university is a learning laboratory for healthful living. Most of the major causes of death in this country at present are the results of the individual's failure to conserve his own resources, whether physical, mental or emotional. If the Student Health Service fails to plan for the use of present knowledge and the integration of future knowledge for the development of such a laboratory, then we will remain in the position of the harried workers who are continually fighting a flood rather than building the dam which would prevent the flood.

An essential feature of our planning must be to outline a method by which the members of the health team become teachers of the students and not just treaters of them. A secondary consideration here is that health professionals in the university setting must have equal status with faculty if they are to engage in long term career development in the university setting. This cannot be accomplished by fiat, but must be done by effective work in teaching and research, as well as service. (Coggins, 1969, pp. 1-2)

Generally, the requirements of PPBS as outlined by Schultze (see Chapter II) were followed by the writer in guiding the task force in the development of a program. Establishing objectives in useful terms was reasonably difficult as expected; however, much of the difficulty arose when it was pointed out that objectives should be in terms of programs, each program must have an understandable output

which must be measured and that the program must be capable of being "costed" so that program costs could be compared to program benefits. These requirements caused problems to arise because of needed specificity as well as compromise. The requirement for budgeting for future years also meant that the objectives needed to be considered carefully in order to portray effectively the plans of the SHS for the future as well as intentions to phase out selected parts of current programs. Such searching review and development of objectives and programs were difficult tasks and impatience and frustration were noticeable at times among task force members; nevertheless, most, if not all, were quick to see the advantages of the PPBS approach and were discerning enough to recognize its disadvantages. During the initial period, virtually no guidance was received from the J. Hillis Miller Health Center or from the University of Florida administration. The responsibility for guiding the implementation of PPBS was divided in that the Vice President for Academic Affairs was responsible for organizations in the category of "education and general" while the Executive Vice President of the university was responsible for the J. Hillis Miller Health Center, the Institute of Food and Agricultural Sciences, and others. When guidance was issued, it was generally in terms of academic organizations—a mold into which the Student Health Service did not

realistically fit. Fortunately it was possible to "plug into" the program structure developed by the State Bureau of Planning at the program element level and to submit very generalized budget data. The actual statement of objectives and program structure from which the generalized information was developed were quite specific and was used extensively as an internal planning tool.

*Statement of Objectives*

A general statement of objectives (Program Memorandum, 1970, pp. 3-5) indicates that the SHS at the University of Florida seeks to provide for the physical and mental health of the students at the University of Florida, including contribution to maximum physical and emotional health and the reduction of the number, length and severity of illnesses and disabilities and the number of deaths. A secondary objective is to insure sound health standards by providing pre-employment health evaluations for certain employees at the University of Florida. In accomplishing these objectives, personnel at the SHS will also be devoted to the more specific objectives in the following primary areas of activity.

*Prevention*

To prevent disease, disability, death, disruptive emotional experiences and dissatisfaction in matters of health.

*Remedial Measures*

To detect and diagnose symptomatic disease states in students and certain university employees.

To cure those illnesses which are amenable to cure and to rehabilitate the student with an incurable disease or disability.

To accomplish the first two objectives in this category with minimum interference with the student's educational endeavors at the University of Florida.

To conduct research into diagnostic, treatment and rehabilitative measures which are particularly applicable to college students.

*Education*

To increase the skills of personnel employed at the SHS.

To increase the student's knowledge of personal health care.

To provide training programs for volunteer students and others in the community who wish to work toward improving the health of the students of the University of Florida.

*Extramural Consultation*

To provide advice, counsel and guidance to other universities, colleges, junior colleges and high schools of Florida regarding health services and systems.

*Administration and General Support*

To plan for, obtain and administer the necessary funds, personnel and facilities to accomplish the above objectives.

To provide the factors which will allow employees to achieve and maintain high productivity and good morale.

*Program Structure*

It is then necessary to group the various activities required to accomplish the program objectives. This assists in the evaluation of program effectiveness and the assignment of objectives. In this way, costs and associated benefits of alternative means of accomplishment of objectives may be portrayed to the decision-maker so that he may decide which alternative represents the most effective allocation of resources. A program structure for the SHS at the University of Florida is outlined below. In consonance with plans stated earlier (page 41), the coding procedure adopted by the State Bureau of Planning is used (Boutwell, 1970, p. 8), although this procedure differs somewhat from guidance provided by HEW (U. S. Department of Health, Education and Welfare, 1968b, pp. 30-50).

PROGRAM STRUCTURE  
STUDENT HEALTH SERVICE  
UNIVERSITY OF FLORIDA

- 1 *Prevention*
  - 1.1 *Informal Education*
    - 1.111 Orientation
    - 1.112 Small Group/Single Topic Teaching
    - 1.113 Media Information
  - 1.2 *Environmental Health*
    - 1.2A Sanitation
    - 1.2B Food Service
    - 1.2C Water Purification
    - 1.2D Air Pollution
    - 1.2E Riot Control (Emotional)
    - 1.2F Disaster Planning
    - 1.2G Housing Standards
    - 1.2H Accident Prevention
    - 1.2I Fire Safety Control
    - 1.2J Laboratory Safety
    - 1.2K Employee Health Hazards (Total University)
  - 1.3 *Research*
    - 1.31 Epidemiological
    - 1.32 Polyphasic Screening
    - 1.33 Preventions Program Evaluation
    - 1.34 Drug Evaluation
  - 1.4 *Screening*
    - 1.41 Admission Evaluation
    - 1.42 Polyphasic Screening
    - 1.43 Preemployment
    - 1.44 Exit Evaluations
    - 1.45 Examinations for Military Duty
  - 1.5 *Secondary Prevention*
    - 1.51 Infectious Disease Control
    - 1.52 High Risk (Emotional and Physical)
    - 1.53 Disease Monitoring (Individual)

2

*Remedial Measures*

2.1

*Diagnosis and Evaluation*

- 2.11 Inpatient
  - 2.111 Intake
  - 2.112 Evaluation
  - 2.113 Discharge or Transfer
- 2.12 Outpatient
  - 2.121 Intake
  - 2.122 Evaluation
- 2.13 Screening Follow-up Examinations
  - 2.131 Intake
  - 2.132 Evaluation
- 2.14 Ecological Diagnosis

2.2

*Treatment*

- 2.21 Inpatient
  - 2.211 Drugs
  - 2.212 Nursing Skills
  - 2.213 Psychotherapy, Counseling and Group Therapy
  - 2.214 Special Diet
  - 2.215 Domiciliary Care
  - 2.216 Special Procedures (Application of Casts, etc.)
  - 2.217 Physical Therapy
- 2.22 Outpatient
  - 2.221 Drugs
  - 2.222 Nursing Skills
  - 2.223 Psychotherapy, Counseling and Group Therapy
  - 2.224 Special Procedures (Application of Casts, etc.)
  - 2.225 Physical Therapy
- 2.23 Ecological Manipulation
- 2.24 Rehabilitation
  - 2.241 Specific Disease
  - 2.242 Therapy

3

*Education*

3.1

*Inservice*

- 3.11 Nurse Practitioner Training
- 3.12 Visitor Speaker Program
- 3.13 Sub-professional Training
- 3.14 Administrative Procedure

	3.141	Fire
	3.142	Safety
	3.143	Disaster
3.15		Peer Consultation
3.2		<i>Formal</i>
	3.21	Medical Students
	3.22	Residents
	3.23	Psychology and Personnel
	3.231	Course
	3.232	Practicum Students
	3.233	Doctoral-Master's Thesis
	3.234	Personnel Services
	3.24	Social Work
	3.25	Nursing Students
	3.26	University College Course
	3.27	Guest Lecturers (University of Florida)
	3.28	Post-professional Degree
3.3		<i>Volunteer Training Program</i>
4		<i>Extramural Consultation</i>
	4.1	<i>Mental Health Research Project</i>
	4.2	<i>Head Start</i>
	4.3	<i>Community Drug Facility</i>
	4.4	<i>Interuniversity</i>
	4.5	<i>School Health (Public Schools)</i>
5		<i>General Support and Administration</i>
	5.1	<i>Records</i>
	5.11	Business
	5.12	Clinical
	5.13	Statistical
	5.2	<i>Fiscal Management</i>
	5.21	Billing
	5.22	Budgeting
	5.23	Purchasing and Contracting
	5.24	Inventory Control

5.25	Payroll
5.3	<i>Building and Service Support</i>
5.31	Housekeeping
5.32	Plant Maintenance
5.4	<i>Plant Development</i>
5.5	<i>Food Service</i>
5.6	<i>Personnel Management</i>
5.61	Recruitment
5.62	Evaluation
5.63	Records Control (Work Time Records)
5.7	<i>Transportation</i>
5.71	Supply
5.72	Services
5.73	Patient
5.8	<i>Research</i>

The program structure here is developed in considerable detail; however, the decision concerning the degree of specificity should rest with the decision-maker, since he will be using the information as the basis and support for decisions regarding the allocation of resources. The Director of the SHS at the University of Florida was particularly interested in developing a useful tool for internal management purposes and desired a program structure that clearly indicated activities of the SHS in detailed, output-oriented terms. Another reason for the detailed preparation was that if requests for resources were submitted in aggregated terms to higher authorities, as is frequently the case, the more detailed program

structure would allow more specific justification of requests to be provided if required.

Quite specific instructions for the preparation of the program memorandum were provided in a "draft" document (Boutwell, 1970). Generally, organizations were charged with justifying numbers in their six-year academic program and financial plan with "a narrative description of the organization's objectives and how they are accomplished" (Boutwell, 1970, p. 13). The following program memorandum outline was provided.

#### Program Memorandum Outline

- I. Summary of Program Recommendations by Program Category and Subcategory
- II. Statement of Organizational Objectives by Category and Subcategory
- III. Discussion of Program Category "A"
  1. Statement of Previous Accomplishments
  2. Resources Required for Continuation of Existing Programs with No Improvement in Performance
  3. Recommended Improvements in Existing Programs
  4. Recommended New Programs
  5. Recommended Program Deletions
- IV. Discussion of Program Category "B" (same as III)
- V. Discussion of Program Category "C" (same as III)
- VI. Priority Listings of All Recommendations  
(Boutwell, 1970, p. 14).

Organizations were instructed to provide detailed information for each program proposal in attached proposed program requirements (PPR). Separate PPRs were to be prepared for (1) continuation of existing programs, (2) each proposed improvement in existing programs in each category, (3) each proposed new program and (4) each proposed program deletion (Boutwell, 1970, pp. 14-15). These instructions were reinforced by memoranda from the Executive Vice President (Sisler, 1970a) and the Vice President for Academic Affairs (Conner, 1970). The very substantial amount of paperwork generated by the initial instructions was enhanced by differing instructions concerning "inflation factors" which were to be used with respect to salaries and other expenditures. With copies of the initial instructions obtained informally, work on a program memorandum for the SHS was begun. Because of the conditions described above and other opinions, it was necessary to revise the quantitative data repeatedly until the submission date. The program memorandum which serves to describe the program structure or model of the SHS remained reasonably stable and receives primary attention in the remainder of this chapter.

#### *Current Programs and Previous Accomplishments*

The current programs and previous accomplishments are described in the program memorandum and are arranged in

terms of the various program categories cited in the program structure above (Program Memorandum, 1970, pp. 5-11).

Medical services which include primary medical care, preventive medicine, health screening programs and mental health consultation and counseling are available to all full-time students in the university. Services provided for fiscal years 1968, 1969 and 1970 (estimated) are summarized with comparative statistics in Table 3. The changing patterns of health service use, with declines in costly inpatient services and increases in lower-cost diagnostic and outpatient services, may be observed and reflect progress toward SHS goals of an effective comprehensive health care system. Table 4 shows the incidence of diseases contracted by students during the fiscal year 1969. Statistics related to mental health and emotional problems are in Table 5.

#### *Prevention*

Activities and accomplishments in the area of prevention include the summer and fall orientation programs which inform students and their parents of the health facilities available on campus and suggest how to use them properly. Such assistance is also provided through handbooks, catalogs, brochures and posters which are brought up to date annually and made available to new and returning students. In addition to the planned orientation periods, there is also time spent by SHS personnel in consultative periods conducted

TABLE 3  
Comparative Statistics: Services Provided by University  
of Florida Student Health Service

	F.Y. 1968	F.Y. 1969	Estimated F.Y. 1970
<i>Inpatients</i>			
Number of Inpatients Admitted	1,100	961	1,025
Total Inpatient Days	3,950	2,999	2,611
Average Days Per Patient	3.6	3.1	3
Average Daily Bed Occupancy	12.8	9.0	9
<i>Outpatients</i>			
Number of Outpatient Visits	46,427	54,934	58,100
Average Outpatients Per Day	133.4	154.8	159.2
Number Seen by Nurse Only		19,250	22,886
Number Seen by Doctor Only		19,523	19,621
Number Seen by Nurse & Doctor		11,219	15,457
Number Seen Nights & Weekends		9,924	11,459
Number of New Diagnoses		44,209	48,882
Infirmary First Visits		6,371	7,259
<i>X-Ray</i>			
Number of Procedures	2,881	3,511	3,663
Electrocardiograms	90	576	478
<i>Laboratory</i>			
Clinical Lab Tests	39,786	44,060	50,813
Other Lab Tests	3,050	3,001	3,292
Lab Tests Sent Out		540	905
<i>Pharmacy</i>			
New Prescriptions Dispensed	27,750	27,523	32,270
Prescriptions Renewed	3,484	5,910	6,710
Total Prescriptions	31,334	33,433	38,980
<i>Dietary</i>			
Number of Meals Served			
-Regular	6,739	5,280	4,950
-Special	3,111	2,930	2,814
<i>Community Health and Preventive Medicine</i>			
Preemployment Immunizations	1,168	590	1,701
Student Immunizations	2,419	2,613	1,955
Desensitization Injections		1,966	2,227
Allergy Evaluation Series		247	274
Health Cards Issued	303	276	233
Preemployment Physical Exam.	1,525	1,229	1,112
Sanitation Inspections		372	763
<i>Referrals</i>			
Dermatological	60	98	100
General Surgery	79	62	108
Medical Specialties	58	28	12
Ob-Gyn	53	72	106
Orthopedic	164	324	390
Other Surgical Specialties	267	345	335

Source: Program Memorandum, "Recommended Plan and Budget for the Student Health Service, 1971-1976." Gainesville, Florida: Student Health Service, University of Florida, undated (1970).

TABLE 4  
Incidence of Diseases  
Students at the University of Florida  
Fiscal Year 1969

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Disease of the Respiratory System	13,663
Traumatic Injuries	4,825
Diseases of the Skin and Subcutaneous Tissue	3,955
Disease of the Digestive System	3,319
Disease of the Genitourinary System	2,872
Infective and Parasitic Disease	932
Disease of the Ear	926
Disease of Bones and Supporting Structures	656
Disease of the Eye	652
Allergic and Immunologic Disorders	640
Disease of the Nervous System	547
Metabolic and Nutritional Disorders	427
Disease of Blood and Blood Forming Organs	361
Adverse Effect of Drugs, Physical Agents, Chemicals or Other	205
Disease of the Circulatory Systems	204
Pregnancy and Related Disease	181
Ill-defined Symptoms	5,910
Treatments	1,576
Special Conditions and Examination	2,462

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*Source:* Program Memorandum, "Recommended Plan and Budget for the Student Health Service, 1971-1976." Gainesville, Florida: Student Health Service, University of Florida, undated (1970).

TABLE 5

University of Florida  
Mental Health Service and Research Project  
Annual Activity Report  
July 1968 - June 1969

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I. EVALUATION ACTIVITIES

A. Hours	
1. Evaluation	1544 hours
2. Clearance Screening	11 hours
3. Totals	1555 hours
B. New Student Patients	
1. Number individual students seen	1010
2. Number which are readmissions	298
3. % Readmissions	30 %
C. Disposition	
1. Number closed	416
2. Number withdrew from University	32
3. % Seen that withdrew from University	2 %
4. Number new individuals in Therapy, MHS	408
5. Referred elsewhere for Therapy	148
6. Total for Therapy	616
7. % for Therapy	61 %

---

II. THERAPY ACTIVITIES

A. Type	
1. Individual	1720 hours
2. Group	128 hours
3. Marital	39 hours
4. Totals	1887 hours
B. Individual Students in Therapy	
1. Total Number individuals in therapy	456
2. Total Number receiving drugs	153
3. % Student receiving drugs	37 %
C. Terminated Students	
1. Terminated therapy	429
2. Terminated and withdrew from school	30
3. Totals; terminated	459
4. Average frequency/month	4.3
5. Average weeks in therapy (until term)	7.1
6. Estimation of effect:	
a. Improved	275
b. Unchanged	83
c. Worse	3
7. % Improved	60 %

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Source: Annual Report, July 1968 - June 1969. Gainesville:  
Student Health Service, University of Florida (undated).

on an individual basis with students and/or their parents. Although these programs require time and effort, the expenditure pays off well in the form of increased knowledge provided and resultant good will (Coggins, 1970b). Time is also spent orienting administrative personnel on campus, particularly personnel in the Office of Student Affairs and Housing, regarding the health programs and services available in the SHS and special health problems which affect the campus.

Small group teaching of specific topics such as sex education, drug abuse and other specific disease-oriented topics (diabetes, obesity, etc.) are presented to dormitory groups, fraternities and sororities and other appropriate special interest groups on campus.

An educational program for residence counselors regarding health and mental health matters enables this key group to facilitate the preventive programs and health education missions of the SHS with the freshman, sophomore and upper-division students whom the counselors serve.

News media information is provided on topics such as immunization programs, drug abuse, current diseases on campus and administrative announcements on a periodic, recurrent basis at appropriate times. The Director of the SHS is primarily involved in this task.

Environmental health monitoring is limited to the part-time services of a sanitarian who provides periodic

inspection of food service facilities on campus, checks the sewage disposal plant and immunization control of workers at this facility, monitors control of animals on campus and provides information and consultation services to the faculty on laboratory and classroom safety standards.

Research activities in preventive medicine have been in the area of applied research on epidemiological features of certain common campus diseases such as influenza, infectious mononucleosis, infectious hepatitis and upper respiratory infections. A research program on nonautomated polyphasic health testing has been going on for the past three years and about 2,000 students have received physical examinations. A physical examination of this type given by traditional means would cost approximately \$101.80; whereas, the same physical, using the polyphasic health testing system, costs about \$10.20. If performed on a continuous, high-volume schedule, this cost could be further reduced by about 50 per cent. SHS personnel involved in this project are working toward this end (Clark, 1970a).

Students participating in this project have been primarily athletes, medical students and nursing students. Students of the latter two groups were selected because it was judged that they would have a natural and high degree of interest in research of health status, while the athletes were chosen "because of their high incidence of trauma, and

the physical demands to which they are subjected" (Coggins, Thomasson and Clark, 1969, p. 419). Although there is considerable question as to the value of physical examinations or health testing as a means of diagnosing undiscovered disease (Coggins, Thomasson and Clark, 1969, p. 425), substantial dividends may be gained from health testing in the form of morbidity statistics and baseline data at critical periods of the lives of students, e.g., at entry and at graduation (Clark, 1970a).

Health screening has been a major effort within the SHS. Evaluation of the preadmission history and physical examination on all entering students has been improved by the application of computer methods to the review and compilation of these data. The SHS has headed a joint effort of all the health services in the State University System to adopt a standardized form with standardized methods of evaluation. This is now in effect throughout the State University System.

Preemployment evaluation of certain university employees is a program of many years' duration. This activity and the environmental health program mentioned above represented the two areas in which the university provided funds to the SHS. This represents the only income from state sources which supports this health service.

Other health screening services include pregraduation health evaluation for students entering the teaching profession,

for those who will be employed in industry after graduation and for those who require further examinations for military duty.

The preventive treatment of individuals who have had contact with infectious diseases of a highly contagious nature prior to their development of symptoms is an example of secondary prevention. Another involves those individuals, identified as being at risk (susceptible to health problems) on the basis of data accumulated from their preadmission history and physical examination, but with no clear-cut disease diagnosis being made. With these individuals, active evaluation and preventive treatment programs are instituted. This requires 13 man-hours per week. In addition, those individuals who have an identifiable disease in which secondary or more serious complications frequently occur, are monitored on a periodic basis and measures are instituted to prevent the occurrence of secondary complications.

#### *Remedial Measures*

Remedial health measures include all those medical services which characterize a visit to the doctor for most persons. These services involve such activities as evaluation and treatment of a specific complaint, as well as follow-up visits and any rehabilitative actions which are necessary. It is in this area where most of the rising

costs and rising concern about costs occur. For this reason, there is a need to look at each step in the process of a remedial transaction in some detail. This is no longer a simple transaction between a doctor and a patient, if it ever was. The steps in the process include intake (reporting in by the patient) and identification of the individual so that a satisfactory record can be started or recovered. Next is evaluation which means contact with at least a nurse and a physician. Very often the evaluation process also requires that the patient see one or more technologists in the laboratory or x-ray section or possibly confer with a mental health professional. Providing these complex diagnostic and therapeutic procedures creates most of the current financial dilemma in the SHS. According to the Director of the SHS (Coggins, 1970b), however, these costs are considerably lowered by the fact that the application of these procedures reduces the number of days of disability and hospital confinement with the much greater costs engendered there. Table 3 indicates that the average daily bed occupancy in the Infirmary has decreased despite the increase in size of the student body and the Director (Coggins, 1970b) states that the trend has existed for a longer period.

The public health principles on which the mental health division has based service practices from its inception have emphasized short-term, crisis intervention approaches and

group methods, as opposed to long-term, one-to-one psychotherapy. In this way, the emotional problems of the largest number of students can be dealt with in the most economical way with the least amount of personal and academic disruption for the student. With regard to mental health and emotional problems, during the fiscal year 1969, 1,555 hours were devoted to evaluation activities during which 1,010 patients were seen. Therapy activities consumed 1,887 hours during which time 456 individuals were treated. Of this number seen, it is estimated that the condition of 275 was improved; the condition of 83 was unchanged; and the condition of 3 worsened at the time treatment was terminated. The remaining 95 patients continued therapy after the reporting period. The fact that the condition improved in 60 per cent of those receiving therapy is encouraging (Coggins, 1970b).

In 1969 a mail survey of needs and services for married students at the University of Florida was conducted by the mental health research staff of the SHS and funded by the National Institute of Mental Health ("Marriage and College Life," 1968). In the medical section of the survey, many questions were asked which would provide information and could be relevant to the measurement of effectiveness of SHS programs. This provides

data about married students and is not necessarily representative of all students; nevertheless, many of the questions are so structured that they might need only slight alteration to provide even more useful program evaluation data.

In addition, active consultation with and inservice educational programming for the large numbers of counselors, advisors, student leaders and others on campus help strengthen the whole network of persons who deal with the personal and emotional development of students.

#### *Education*

The educational activities of the SHS include the broad categories of inservice education for professionals employed there and formal educational activities for university students. Inservice education includes a nurses' educational program of one hour per week throughout the year. Instruction is primarily by the medical staff of the SHS supplemented with a few outside lecturers. A training program for nurses' assistants is conducted by the nursing staff in order to upgrade the skills of these assistants.

Formal educational activities include consultation and teaching of fourth year medical students who elect rotations in the SHS. There is a regular rotation program

for residents in psychiatry in the Mental Health Service with one or two residents in training at all times. Doctoral students in psychology and personnel services also are assigned to the SHS for periods of time to receive their practical training under supervision. Space in the SHS is provided for these graduate students for their patient contacts. The Director of the SHS also engages in formal teaching in the medical school.

Training programs for all staff in fire evacuation of the building, safety programs and periodic review of the disaster plan are accomplished on a regular basis.

#### *Extramural Consultation*

Over the past few years it has become evident, both within the private health sector and in institutional health services, that one of the problems in the rising cost of health care has been duplication of services brought about in part by inadequate coordination and consultation between various agencies furnishing health care. Two years ago the SHS took definite steps to strengthen and improve coordination of its activities which impinge on health care, both in the community and in the state. Precedent had been set by the Mental Health Research Project, which for several years had conducted educational and evaluative programs on the mental health aspects of transition of incoming students

from high schools and junior colleges to the University of Florida. These activities have continued.

In addition, the SHS personnel have been involved in several community programs. For example, a physician from the SHS provides the medical administrative guidance for Project Head Start on an annual basis. Space for medical evaluation for this program is provided in eight or nine doctors' offices in the SHS during the summer months when the rooms can be made available without inconvenience to the student body. Administrative planning and administration of the Operation Concern Medical Evaluation of Indigents in Alachua County in 1968 were provided by personnel of the SHS. Evaluation of this program was accomplished by the SHS staff during off-duty hours and a final report was sent to the Governor.

SHS has provided administrative help and professional planning and guidance for the Corner Drug Store, a community facility devoted to the prevention and correction of drug abuse by youth in Gainesville.

Active liaison and participation in affairs of the Alachua County Medical Society, the Regional Health Planning Council and the Community Medicine Division of the College of Medicine, University of Florida, have continued.

A staff member of the SHS has planned, organized and implemented an athletic medicine program for the public

school system of Alachua County. This physician also serves as Chairman of the School Health Committee of Alachua County and performs duties as a member of the County Health Advisory Committee.

Additionally, members of the SHS staff have devoted many hours to international, national and regional committees, athletic medicine, community mental health programs, sex education and consultations at other schools in Florida.

None of the above extramural programs are budgeted items. It seems unrealistic to expect SHS personnel to continue to spend so many off-duty hours on these projects; nevertheless, the Director believes that these activities are worthwhile since University of Florida students reside in and interact with the Gainesville, Florida, community (Coggins, 1970b).

#### *Recommended Improvements in Existing Programs*

After explaining past accomplishments and current projects, improvements in existing programs were recommended (Program Memorandum, 1970, pp. 11-16). The writer recommended to the Director that the number of recommended improvements be held to two or three of the most needed changes whose cost-benefit advantages would be fairly simple to illustrate. This suggestion was made to avoid the tendency to compile a "wishlist," the items of which would probably

be unavailable. Further, the very short preparation period available seemed to preclude the development of sophisticated cost-benefit analyses. The Director agreed with these suggestions. Although no format instructions were received, the SHS followed an approach which included (1) the statement of the problem, (2) background information, (3) alternative proposals, and (4) a recommended alternative. This format has been used by at least one agency in the Federal Government (J. W. Carlson, 1969, pp. 676-697). More important, it seemed to be a well organized way of presenting material. Programs related to health education, environmental health and nursing were discussed.

#### *Health Education*

*Statement of the problem.*—Thus far virtually no support has been provided for health education for the student. Drugs and sex are two such problems of current concern. Results from a recent questionnaire survey conducted by the SHS indicate that over 30 per cent of the University of Florida students have used drugs one or more times. In the first 10 months of the fiscal year 1970, 178 pregnancies, most of them in unmarried women, and 56 abortions came to the attention of SHS personnel. For the fiscal year 1969, the figures were 110 and 11, respectively (Coggins, 1970b).

*Background.*—There is a real need to develop further and improve current commitments in health education,

especially in view of the very high value persons place on health and longevity. Commitments in certain elements of health education as outlined previously have been developed because of the recognition of the need and because no one else was addressing the problem. Work in this area is performed in large measure by SHS personnel outside normal duty hours. Certainly there is a difference between health education for the consumer and for the future professional in health; nevertheless, students at the University of Florida need to be stimulated to recognize the ever changing problems in health care and to be motivated to participate in their solution (Coggins, 1970b).

*Alternative proposals.*—(1) Proceed according to the current practice of allowing some members of the present staff to contribute their efforts after their normal working hours. (2) Stop participation of members of the SHS staff and attempt to stimulate other interested groups or agencies to focus their efforts on the immediate and long-term problems. (3) Develop and implement a program in which those colleges and/or departments which share mutual concerns in various areas of health education with the SHS will, in cooperation with the SHS, establish joint appointments with joint funding of personnel who will undertake these activities.

*Recommended alternative.*—Alternative proposal (3) was recommended since there was already precedent for such administrative arrangement involving the SHS, the College of Medicine, the College of Education and the College of Arts and Sciences in that "courtesy" faculty appointments are held by members of the SHS staff and two members of the staff hold regular, tenurable appointments. Personnel who hold faculty appointments in those departments have their major commitment to and budgetary support from the SHS. The administrative structure currently handicaps the strengthening of these arrangements but this could be modified to allow full coordination of budgeting and appointment for such individuals with salary support from other departments when such personnel and funds are available. This proposal had the additional advantage of strengthening liaison through a SHS which maintains its primary dedication to medical care but with a definite commitment to and support for the educational function. The budgetary and manpower implications of alternative (3) were as follows: Budgeting \$44,955 for the fiscal year 1971 would provide two full-time equivalent (F. T. E.) professionals, plus fringe benefits. The program would be divided between formal course offerings and informal teaching as now designed primarily for undergraduate students. Alternative proposal (1) was rejected because it seemed wholly unrealistic to expect SHS staff members

to continue the current program indefinitely during off-duty hours, although this expertise should be recognized and supported. Alternative proposal (2) seemed reasonable but was rejected because experience indicated that other campus or community agencies not faced with the immediacy of the health education problems would not respond to them but, rather, would be guided by their own long-term educational goals and would be hampered by the rigidities of their own staffing and budgeting procedures (Coggins, 1970b).

*The Environmental Health Program*

*Statement of the problem.*—The University of Florida is not receiving reasonable services for its payment to the Alachua County Health Department for the part-time services of a sanitary engineer. More important, the welfare of the student is endangered unnecessarily.

*Background.*—Although an institution need not assume full responsibility for all environmental health measures required, it has a clear responsibility to maintain continued surveillance of environmental factors which could adversely affect the health of its students. Sanitary control problems are becoming more difficult and numerous due to increases in population and new problems are created by changes in the way students live. The increase in numbers and types of food vending machines on campus have created

serious health threats and sanitation problems for which adequate solutions have not been developed. Increasing numbers of animal pets are kept by students on and off campus, causing a larger number of animal bites and scratches than in the past. This results in an increased potential for rabies and other infectious diseases transmitted by animals. The University of Florida administration has provided funds which support part of the salary of a sanitary engineer based in the County Health Department to provide sanitation inspection services for the campus; however, a recent change in the philosophy of the County Health Department away from this traditional aspect of public health and toward the provision of primary medical services to the indigent population caused de-emphasis in these services to the campus concurrently with the appearance of new and more serious environmental pollution problems on campus (Coggins, 1970b).

*Alternative proposals.*—(1) Continue to compensate the County Health Department and hope that interest in environmental health problems would increase and result in the provision of increased manpower to solve projected environmental health problems. (2) Acquire the services of a full-time environmental health specialist on the SHS staff.

*Recommended alternative.*—Alternative proposal (2) was recommended in view of the fact that full-time services of a sanitary engineer can be acquired for an annual sum equal to

the annual payment of \$10,000 to the County Health Department plus an additional \$2,900 per year. This specialist would be assigned to the SHS and could provide specific services promptly where needed. Further, he could coordinate efforts of other departments on campus whose personnel are well informed concerning techniques of measurement and control of environmental threats to health and are actively engaged in developing new methods. Although the SHS is short of space, a location for this person could be arranged for the short term. Alternative proposal (1) was rejected because experience with the County Health Department indicated that a change in their philosophy to one which emphasizes increased environmental health services for the campus seemed highly unlikely (Coggins, 1970b).

#### *Nursing Service*

*Statement of the problem.*—There is a clear need for the development of effective training programs for nurses in college student health. Development of such programs requires a nurse with much experience and excellent training and capability who also has the time to devote to such duties. Such work is typically handled by the Director of Nurses in teaching hospitals; however, the grade limitation placed on the SHS has restricted the SHS from acquiring a Director of

Nurses and made the development of appropriate training programs for nurses impractical at the SHS (Coggins, 1970b).

*Background.*—Inservice education, training and administration of volunteer support programs, evaluation of nursing practices and training of nursing assistants are four programs requiring improvements. In many cases, the nurse is the student's first contact with available health services; consequently, her actions can contribute greatly to the further wise use of the SHS by the students. She is in an excellent position to counsel and to teach the student about appropriate health behavior. At the SHS, the student's initial contact will be with a nurse unless he has made a prior appointment with a doctor. The nurses at the SHS saw 30,469 patients in the fiscal year 1969 and an estimated 38,343 in fiscal year 1970 (see Table 3). Although it appears that an increasing workload and an improved nursing program would require additional personnel, qualified nurses are becoming more scarce in the local area. The solution is to upgrade and improve the skills of those already in the SHS and to provide them with assistants where possible (Coggins, 1970b).

*Alternative proposals.*—(1) Obtain authorization to hire a Director of Nurses with the educational level of a master's degree in nursing to be paid a salary of \$10,000 per year. Her duties would include establishing objectives

of the nursing program, outlining policies and procedures which would guide the nursing staff with respect to daily and long-range tasks, developing and implementing various training and inservice education programs, and the scheduling of the time of the individuals on the nursing staff in the most efficacious manner. (2) Continue with the increases in the current staff only as necessary to keep up with the rate of increase of the student body.

*Recommended alternative.*—Alternative proposal (1) was recommended. The cost would be \$10,000 in the fiscal year 1971. Development of a volunteer assistance program, improving the scheduling of activities of the nursing staff and the increased morale among nurses emanating from the establishment of a Director of Nurses should further increase the efficiency of the nursing staff. Alternative proposal (2) was rejected because not only are the health needs of the students increasing at a more rapid rate than the number of students but the availability of new nurses in the next 10 years will probably be more limited than in the past (Coggins, 1970b).

#### *Future Projects*

There was no requirement for a discussion of future projects; however, it seemed to be a reasonable procedure

to inform higher authorities that important needs exist and that effort is being expended to gather data and perform analyses in order that requirements can be presented and justified thoroughly and effectively. Also, it can be a sounding board for future requests. A more candid reason in the case of the two future projects discussed in the SHS program memorandum was that there was not sufficient time to present adequate analysis.

Investigation of means of evaluating program effectiveness was begun in this research and the results of most of the investigation appear here, especially in Chapters IV and VII. The necessity for additional space, the second future project discussed, for the SHS is probably rated as one of the most, if not the most, important current requirements of the SHS.

#### *Evaluation of Program Effectiveness*

In consonance with the PPBS approach, the Director indicated his intention to move from a measure of "activity" at the SHS to a measure of "action" in terms of criteria or output measures. Although statistics were presented in the program memorandum which concern such measures as patients treated, he pointed out that research which attempts to develop medical care statistics that will allow measurement of the effectiveness of the SHS in terms of outputs rather

than inputs was being conducted. Attempts were to be made to measure changes in such items as total and per capita number of school days lost due to illness per year and number of illnesses prevented, deaths averted and restricted-activity days averted per year as compared with the base. Effective analysis will require that several criteria be developed because each criterion will probably contain some aspects not contained in other criteria. He cautioned that it is probable that funds would be required to support necessary surveys of students to gain such data but believed that, considering the absence of accomplishments in this area to date, any advances here would be highly significant. A detailed report on this research was to be completed within six months. This doctoral research is to be the initial phase of the overall investigation. Other organizations at the University of Florida generally did not address this very important problem of evaluating or measuring program effectiveness.

#### *Space Requirements*

In July, 1969, a systematic analysis was begun of all the functions of the SHS in order to lay the groundwork for a presentation of necessary space requirements and to provide a basis for a projected 10-year program which would support the best possible planning for a new physical facility for

the SHS. Since health needs change with time, a comprehensive outline of functions seemed to be the best starting point from which to make intelligent plans for the construction of a new student health facility.

The present infirmary building is crowded and inefficient in its physical layout. According to recommendations made by the Board of Regents, the minimum space required to serve the projected student enrollment in 1971-72 is 57,074 square feet. The 31,000 square feet currently available is only 54.3 per cent of the required space (Pritz, 1970a). As the size of the student enrollment grows beyond 1971-72 as projected, the space shortage will become more critical, particularly for outpatient (office visit) functions. Space requirements for the years through 1976-77 are shown in Table 6.

Further, in recent years concern for health problems for other members of the "college community" has developed; e.g., dependents of students, faculty and staff and their families. Certainly a plan to support this large group in the near future would require an heroic effort. However, the Director and personnel at the SHS do feel a responsibility for the medical care of dependents of students. In many cases, the situation of students and their dependents is a semitransitory one in which it is quite difficult to obtain needed medical services. The very limited income of many student families accentuates this problem. The student

TABLE 6

Space Requirements<sup>a</sup>

	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Student Head Count	22,784	23,770	24,972	26,074	27,244	28,394
Space Requirements <sup>b</sup>	57,074	59,544	62,555	65,315	68,246	71,127
Current Space	31,000	31,000	31,000	31,000	31,000	31,000
Additional Space Requirements	26,074	31,555	31,555	34,315	37,246	40,127

Source: Program Memorandum, "Recommended Plan and Budget for the Student Health Service, 1971-76." Gainesville, Florida: Student Health Service, University of Florida, undated (1970).

<sup>a</sup>Based on factors expressed as minimal for Student Health Service by the Board of Regents.

<sup>b</sup>1.5 square feet per student enrollment for service space—plus—1.67 square feet per student for "nonusable space," i.e., wall, halls, closets, etc.

probably cannot do his best academically when there are serious unmet health needs for his dependents.

No funds were requested for this facility in the 1970-71 budget, but SHS personnel are currently studying this problem carefully and a full report with appropriate requests will be submitted for consideration in the 1971-72 and later budgets.

## CHAPTER VI

### A COMPARISON OF INCREMENTAL BUDGETING AND THE PPBS APPROACH AT THE UNIVERSITY OF FLORIDA STUDENT HEALTH SERVICE

Discussion in this chapter is in general terms for the most part and quantitative budgetary data are not provided for two reasons. First, information is preliminary and to a certain extent confidential. Second, a "crosswalk" procedure was initially attempted and, because the forecast expenditures were larger than the forecast revenue, the Student Health Service was required to adjust to conform to limits of normal budget procedures.

The difficulty of comparing the PPBS approach with the "normal," "traditional" or "incremental" budgeting procedure at the University of Florida is that there is no "normal" budgeting process—at least not one that is authoritatively described or documented in any way. Although there are legislative guidelines issued each year with respect to budget preparation, these instructions tend to vary from year to year. About the only written material available which discussed the subject was an outline of a briefing about PPBS presented at the University of Florida by the Director of Planning and Evaluation for the State University System. In many ways this material suffers from

the general treatment which characterizes many briefings. The following paragraph from the briefing outline represents such generality.

Program review is the basis for the new planning system. Program emphasis or de-emphasis will be visible as it has not been in the past. With this visibility, however, comes a potential for misinterpretation of detail and a selective evaluation of small pieces of operations. On a statewide basis, program visibility is intended to allow the plotting of alternative courses of action and a six-year look at the implications of present and future program decisions. (Kaludis, 1970, p. 11)

A new constitution for the State of Florida was adopted in 1969 and this brought about a change in the authority and the budgeting activity schedule at the state level which, of course, affected in some ways most organizations in the State University System (Kaludis, 1970, pp. 2-8). The passage of the new constitution as well as action by the 1967 and 1969 legislatures caused the three following significant changes which altered the state budgetary process: (1) annual legislative sessions, (2) governmental reorganization and (3) a new state planning system. Whereas planning and budgeting required six months' preparation when there was a two-year cycle, a biennial legislative budget and an annual operating budget, supposedly planning and budgeting are now "unending processes" in the new time frame which includes one-year and six-year cycles, an annual legislative budget, an annual operating budget and an annual revision of the six-year plan (Kaludis, 1970, pp. 2-6). A planning activity schedule for both the old and the new

systems is shown in Chart 2. These changes added to the difficulty of comparing the old and new budgeting systems.

Under the old system, the legislature, Budget Commission, Budget Director, Board of Regents and universities were involved. In the new process the Budget Commission and Budget Director have been eliminated but the Governor, Secretary of Administration, Bureau of Planning, Bureau of Budget, State Board of Education and Department of Education have been added (Kaludis, 1970, pp. 3-4). The Board of Regents was very specific about the unacceptability of simply recasting currently available data into a different format. Although this was an apparent alternative, it was emphatically rejected as a total waste of time since such an approach would restrict the contributions of operating, academic and administrative officers which are necessary (Kaludis, 1970, p. 11). Also there was no mention of translating the data into terms normally used by the legislature. Apparently it was assumed that requests for funds could be submitted in the new PPBS format and they would be honored. Experience of federal agencies with the United States Congress has clearly indicated that such an assumption is an heroic one and that PPBS must be translated into the normal appropriation budget format via a crosswalk process (U. S. Department of Health, Education and Welfare, 1968b).

Two additional problems of comparison are that the SHS is an auxiliary organization and it must be self-supporting.

OLD—Two-year Cycle  
(occurs once every two years)

NEW—One-year Cycle  
(occurs each year)

---

*July-August*  
Analysis and preparation of  
Biennial Budget

*June-July*  
University Budget Hearings with  
Chancellor

*September*  
University Budget Hearings  
with Chancellor

*September*  
Board of Regents' Budget to  
Department of Education  
Board of Regents' Six-year Plan  
to Department of Education

*November*  
Board of Regents' two-year  
budget to Budget Com-  
mission

*October*  
Department of Education budget  
recommendations to State  
Board of Education

*January*  
Budget Commission budget  
Hearings

*November*  
State Board of Education budget  
and six-year plan to Depart-  
ment of Administration

*March*  
Budget Commission budget  
recommendations to  
legislature

*January*  
Governor's Budget Hearings

*April-May*  
Legislative Session  
Appropriation

*February*  
Governor's Budget recommendations  
to legislature

*April-May*  
Legislative Session  
Appropriation

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Source: Kaludis, 1970, pp. 7-8.

Chart 2. Planning Activity Sequence

Accordingly, the SHS must work toward a balanced budget and represent estimated revenue as well as expenditures rather than simply submitting and justifying requests for funds as is the case of the academic organizations.

Discussions with the Assistant in Administration on the SHS staff who was responsible for preparing the budget during the past four years (Pritz, 1970b) and a review of available working papers related to budget preparation and instructions from the university administration indicate that the overall process has changed insignificantly. There have been some changes in format, e.g., a "new programs" category is specifically listed in the 1970 form but not in the 1969 form. Nevertheless, new programs had to be justified whether they were listed formally or not. Also there were some changes in dates of submission. A definite annual schedule was not available and very short allowable preparation periods could be anticipated; therefore, budget preparation at the SHS was at times triggered by hunch and informal communications (including rumors). In July, 1970, for example, instructions for budget preparation were transmitted by telephone and not all of the needed guidance for preparation was obtainable. Only three or four days were available for preparation. Probably many of the most recent budgetary problems were caused by delays which resulted when the Governor questioned the constitutionality of the budget passed by the legislature. It is not the

purpose of this research, however, to determine the sources of problems in the state budgetary process but rather to report as accurately as possible how and under what conditions the budget at the SHS is developed.

The format for the budget preparation in 1970 is shown in Chart 3. The 1969-70 Operating Budget is shown for comparative purposes, the 1970-71 Legislative Budget is revised as necessary and becomes the Operating Budget on July 1 and the 1971-72 Legislative Budget is a requested budget for that period. In the "Disbursements" category, salaries and operating capital outlay (OCO) are self-explanatory while other personnel services (OPS) figures primarily reflect budget information about part-time employees. The expenses category includes such items as utilities, administrative supplies, telephone charges, building repair and maintenance. Although this format represents the specificity that is required, there is a much more detailed account kept at the SHS on a continuing monthly basis. For example, expenses or operating expense are subdivided in the following manner:

Operating Expense

- Contractual services
- Advertising
- Telephone
- Printing
- Travel
- Utilities
- X-ray (radiology)
- Laboratory procedures
- Sanitary services

RECAP OF OPERATIONS

	<u>1969-70</u> <u>Operating</u> <u>Budget</u>	<u>1970-71</u> <u>Legislative</u> <u>Budget</u> <u>Requested</u>	<u>1971-72</u> <u>Legislative</u> <u>Budget</u>
Cash Balance (Include Investments) July 1	\$	\$	\$
Current			
Restricted			
Other			
A. TOTAL	<u>\$</u>	<u>\$</u>	<u>\$</u>
Receipts (Detailed by Major Source)	\$	\$	\$
B. TOTAL	<u>\$</u>	<u>\$</u>	<u>\$</u>
Available for Operations (A & B)	<u>\$</u>	<u>\$</u>	<u>\$</u>

Chart 3. Format for Budget Preparation—Auxiliary Units

	1969-70 Operating Budget	1970-71 Legislative Budget Requested	1971-72 Legislative Budget
Disbursements			
Current Programs			
Salaries	\$	\$	\$
Retirement & Social Security Matching (9%)			
Other Personnel Services			
Line Item 701-Grad. Assts.			
Line Item 702-Stu. Assts. and Labor			
Line Item 708-Consultants			
Other (Indicate Type)			
Expenses			
Operating Capital Outlay			
Replacement			
New Equipment			
Other			
<hr/>	<hr/>	<hr/>	<hr/>
Total Expenditures for Current Programs	\$	\$	\$
New Programs			
Salaries	\$	\$	\$
Retirement & Social Security Matching (9%)			
Other Personnel Services			
Line Item 701-Grad. Assts.			
Line Item 702-Stu. Assts. and Labor			
Line Item 708-Consultants			
Other (Indicate Type)			
Expenses			
Operating Capital Outlay			
<hr/>	<hr/>	<hr/>	<hr/>
Total Expenditures for New Programs	\$	\$	\$
<hr/>	<hr/>	<hr/>	<hr/>
Total Expenditures	\$	\$	\$
<hr/>	<hr/>	<hr/>	<hr/>
CASH AND INVESTMENTS, June, 30	\$	\$	\$

Source: Sisler, 1970a

Maintenance (routine)  
Computer program  
Psychiatric services  
Orthopedic clinic  
State Personnel Board  
Total Contractual Services

Supplies  
Bedding and linen  
Pharmacy (drugs, etc.)  
Pharmacy supplies  
Clinic supplies  
Laboratory (syringe needles)  
X-ray  
Housekeeping  
Administration (office supplies)  
Food  
Dietary supplies  
Truck fuel  
Total Supplies Cost  
Total Contractual Services and Supplies

There are breakdowns in the other principal categories which are similar in detail. One of the primary reasons for keeping a monthly account of this detailed breakdown is to check the rate of expenditures over the year. The budgeting officer also uses this more detailed budget to determine his legislative budget (Pritz, 1970b)

An examination of budget working papers covering years in the recent past as well as instructions from university budgeting personnel reveals that justification of additional expenditures was not rigorous, tended to be very general and did not indicate the benefit of the addition in any quantitative way. Such general reasons as "if we are to provide service at our current level of excellence" were common. Instructions from the university administration did little to require more specific justification. Instructions sometimes did not require written

justification because of the necessarily short budget preparation time, and in that event the SHS was informed that justification could be presented directly to the University Budget Committee during the scheduled review of the organization's budget. According to the budgeting officer at the SHS (Pritz, 1970b) most increases in expenses, other personnel services and operating capital outlay were justified on the basis of being necessary support for additional personnel. Accordingly, the very important part of the budget request was the effective justification of additional personnel. In a case where there would be a substantial increase in the operating capital outlay request because of the need of a new facility, then, of course, there would have to be special justification. Under the conditions described above, it can be seen that a shift from the biennial budget to the annual budget made little difference at the SHS because detailed budgets were maintained on a monthly basis. Also instructions generally included guidance with respect to the increments which would be acceptable and should be used for each category. Of course, additional funds could be requested but required special justification. For the SHS, increased revenue each year came from anticipated increased student enrollment and the associated portion of the student fees which are allocated to the SHS. Although the amount of the student fee has risen over the last 20 years, the percentage of the fee

allocated to the SHS has declined. At one time 15 per cent of the student fees was received by the SHS, but this has now declined to 8.6 per cent (Pritz, 1970b). Also, the SHS must pay for its utilities, building maintenance and the like whereas the academic organizations do not pay such charges but, rather, they are paid out of the general, overall University of Florida budget.

Budgeting was handled differently at the SHS when the PPBS was implemented. Developing the program structure is described in some detail in the previous chapter. An examination of the program structure representing the SHS shows greatly differing segments of activities. As stated previously, the program categories in the program structure represent output-oriented rather than input-oriented elements. At the SHS the budgeting officer first listed all personnel who were involved in each of the five program categories. For example, the following personnel were listed under the program category "Prevention":

Research assistants	Pharmacist
Physicians	Medical transcriber
Psychiatrists	Dietary
Psychologists	Housekeeping
Nurses	Sanitary engineer
X-ray technician	Director of Nurses
Laboratory technician	Clerk typists

The same type of personnel lists were compiled for the Remedial Measures, Education, Extramural Consultation and the Administrative and General Support program categories. Some persons appeared in one category and not in

others; e.g., it was judged that a pharmacist's assistant and a nursing aide who spent 100 per cent of their working time in remedial activities should appear only in the Remedial Measures program category. Many employees, of course, appeared in more than one program category in consonance with the amount of time and effort expended in each area in terms of full-time equivalents (FTEs). These judgments were made by the budgeting officer on the basis of past experience, some time-and-motion studies, statistical analyses and financial reports. This was not a formal, rigorous study although a considerable amount of time was spent preparing the data. Then the percentages of FTEs assigned various individuals were discussed with department and section heads and revised when required. Costs or dollar amounts could then be assigned to the various personnel and an amount for salaries in each category obtained.

Based on previous experience, it was determined that other personnel services, operating expense and operating capital outlay could most realistically be allocated to the various program categories in direct proportion to the cost of the FTEs in each category. For example, if 45 per cent of the total FTEs cost were in Prevention, then 45 per cent of the funds available for operating expenses should be allocated to Prevention. The amount of funds available for operating expenses was determined by taking last year's operating budget and applying factors received

in instructions or guidance from higher authorities. Any new requests are reflected; e.g., it will be noted above that the proposed Director of Nurses is listed in the program category Prevention. This position was requested but has not been approved (Pritz, 1970b).

Personnel costs for each program category were calculated in terms of costs per FTEs and then, according to the procedure described above, costs for other personnel services, operating expense and operating capital outlay were developed for each program category. It was a simple matter to add the costs per program category of the various budget classifications to develop total cost per budget classification which was required when operating budgets and legislative budgets were requested.

A crosswalk can be established by listing the program categories (i.e., prevention, remedial measures, education, extramural consultation and general support and administration) along the vertical axis of a matrix and legislative budget categories (personnel, other personnel services, expenses and operating capital outlay) along the horizontal axis as shown in Chart 4. Appropriate budget figures can be placed in the chart so that funds for PPBS program categories may be immediately translated into amounts allocated for legislative budget categories. Both the program categories and the legislative budget categories may be subdivided into any level of detail desired as long as

Operating  
Capital  
Outlay  
(OCO)

Other  
Personnel  
Services  
(OPS)  
Expense

Personnel  
Costs  
(Salaries)

	Personnel Costs (Salaries)	Other Personnel Services (OPS) Expense	Operating Capital Outlay (OCO)
Prevention			
Remedial Measures			
Education			
Extramural Consultation			
General Support & Administration			

Prevention

Remedial Measures

Education

Extramural Consultation

General Support &  
Administration

Chart 4. A "Crosswalk" Format

funds can be separated accordingly. For example, program categories may be portrayed in the detail shown in the program structure for the SHS in Chapter V. Likewise, the legislative budget category may be subdivided to the degree shown in the discussion of operating expense on page 187.

Of course, the objective is to bring about a change in the appropriations budget structure so that it will conform with the PPBS format and thereby decrease the amount of preparation considerably. Then a uniform accounting system can be established which will allow expenditures to be classified according to program categories. Finally, much of the information can be computerized which should decrease preparation time even more. This is the goal; however, if the Federal Government is any example, then it probably will be a few years before the state legislature agrees to a legislative budget format change.

In the actual submission of the PPBS material by the SHS, it was necessary to prepare the data four times because of changed instructions. Initial instructions indicated that budget estimates should be submitted in current dollars and adjustments would be made at the university level (Conner, 1970, p. 2). Next, the Chancellor directed that a 7.5 per cent annual increase be applied to all salary and other personnel services expenditures and university officials recommended a 3.5 per cent annual price adjustment be used for operating capital outlay expenditures and expense

items since this figure was consistent with the annual increase in the wholesale price index for industrial items (Sisler, 1970a). Later a 5.2 per cent increase for salaries was suggested (Sisler, 1970b). Finally, after the preceding changes had been made, administrative personnel at the J. Hillis Miller Health Center requested that the SHS budget estimate be a balanced one. Necessary cuts were made; however, the requirements of the recommended improvement areas remained in the budget estimate. For the most part, the budget estimate that was submitted by the university was quite similar to the one which would normally have been submitted, except this year an impressive amount of paperwork in the form of program memoranda from the various organizations accompanied the budget estimate submission.

Most of the difficulties experienced in the process of implementing PPBS both by the other divisions of the university and by the SHS were readily predictable in view of the similar problems encountered by federal agencies. In fact, these were predicted by the writer and conveyed to the Director of the SHS. Cooperation and coordination at all levels are required to obviate these difficulties. Despite these procedural problems, the results of the first year's efforts at formulation and implementation of a PPBS for the SHS are satisfactory at this point in time. Improvements may confidently be predicted if continuing efforts of the same quality will be forthcoming.

## CHAPTER VII

### FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The PPBS approach is very new in Florida, and attempts to implement the approach on a statewide basis have been underway less than a year. At this stage it is much easier to point out errors which have been made than improved practices which have accrued. The Federal Government has been attempting to operate according to the PPBS concept for five years and many problems have been and still are being experienced. This situation should not be a goal or serve to justify errors made by officials in Florida's government in implementing PPBS. Rather, they should profit from the Federal Government's experience and avoid the same errors.

#### *Findings and Conclusions*

##### *Guidance*

There was virtually no guidance, instructions or discussion provided to the Student Health Service with respect to concepts, meaning or implementation of PPBS. There was a lack of qualified, experienced personnel in the university administration assigned to the task of guiding and supervising the implementation of PPBS at the University

of Florida. Only two persons were available to visit colleges and other university organizations and provide guidance. Even after the SHS submitted PPBS data, there was some question regarding whether auxiliary units such as the SHS were required to submit PPBS material at the same time as principal university organizations.

Several problems which were encountered by agencies of the Federal Government commencing in 1965, some of which were mentioned in Chapter II, also occurred at the University of Florida. There were few personnel qualified to implement PPBS and few efforts were made to train such people. In some cases assigned academic personnel were given the task on a part-time basis. In other instances, administrative personnel were assigned the job. Some organizations hired outside consultants. Graduate students were also used and doctoral candidates assisted still other organizations, as in the case of the writer and the SHS.

Implementation of PPBS was attempted too quickly and on too broad a scale. It was attempted too quickly because there simply was not adequate time to perform the analyses and prepare accurately the substantial amounts of data required—even if qualified personnel had been available. It was attempted on too broad a scale because the majority of personnel involved had little or no knowledge of PPBS

and there were few organized efforts and no formal programs developed which would familiarize the personnel with the PPBS concept.

### *Leadership*

The direct relationship between the dynamic and strong leadership of the head of an organization and the successful implementation of the PPBS approach in that organization has been pointed out by several authorities and cited earlier in Chapter II. This relationship was further validated in this research. The Director of the SHS proved to be an excellent listener and encouraged opinions and suggestions of members of the task force and discussion among them. Although he was permissive with regard to complaints about the PPBS concept, he left little doubt in the minds of the members of the task force that he intended to implement the concept if at all practical. The Director had an excellent grasp of the PPBS concept and developed a large portion of the program structure and the program memorandum himself. The need for the strong support of an undertaking by the head of an organization, if the project is to be successful, has been said before (Jones and Trentin, 1966, p. 27) but in this research it was so important that it bears repeating. If the Director had been resistant or even not supportive, it seems highly probable that the

effort would have been a failure because support and cooperation from other members of the SHS would probably have been low. The strong support of the head of the organization was also important to this research because of the specialized nature of the activities in the health care field and the dependence of the researcher on members of the SHS staff for much of the non-PPBS information.

#### *Internal Management Tool*

The prime reason for enthusiasm toward the PPBS concept by SHS personnel was that they believed it was a vehicle which could be used effectively to justify requests for the most necessary requirements. In other words, it was a better way to "prove" and reinforce the correctness of what they had been saying and asking for all along. Similar enthusiasm of key members of other organizations was verified by informal conversations with persons working with these organizations. However, the possibility that PPBS could serve as a very useful internal management tool did not impress most of the personnel in these other organizations. Accordingly, when implementation problems developed due to poor guidance or the requirement for plain, hard thinking, disenchantment with the approach developed rapidly. In the case of the SHS personnel, however, the value of PPBS as a useful management tool was recognized

and, although frustrations developed, disenchantment did not. Part of this may be attributed to the Director's encouragement and part to the understanding of the PPBS concept by key personnel in the SHS.

Strong leadership and understanding of the potential value of the PPBS approach appear to be prerequisites for success although initial acceptance seems to stem from the value of PPBS as a vehicle for justifying requirements rather than as an effective internal management tool.

### *Control*

Conflicting beliefs concerning the effect of PPBS on control in an organization were mentioned in Chapter II. Opinions of SHS personnel with respect to the consequence of PPBS on control in the SHS differed but were not necessarily in conflict. As also mentioned earlier, the Director was a strong leader but the writer observed that the PPBS approach seemed to enhance his control with respect to planning and budgeting. Under the normal budgeting system, the Director tended to approve proposed allocations if they were within authorized limits and particular projects in which he had a strong interest received appropriate allocations. Under the PPBS approach, however, he could observe how much the orientation program, for example, was costing. He had an opinion on the degree of effectiveness

of the program and could judge quickly whether this benefit was worth the cost. He did precisely this at one of the early meetings of the task force. The Director agreed with this observation by the writer.

Another physician generally agreed with this observation but expanded it. In some circumstances, he believes, the Director was not aware of all the activities that were occurring at the SHS until they were developed and portrayed in detail in the program structure. When the Director learned that these additional activities were occurring, he realized he could not effectively control so many activities personally; therefore, this physician believed that implementing the PPBS concept at the SHS has resulted in the Director's assigning additional responsibility to others at lower levels in the organization and relinquishing some direct control of activities. It appeared to the writer, however, that control generally tended to move to the top because the Director could better compare costs and benefits of various alternatives related to activities in which he was expert and which were depicted in the program structure.

#### *Program Oriented*

The Director expressed the problem that members of the staff experienced in attempting to visualize their

daily activities in terms of program categories such as prevention and remedial measures. This problem was verified by other physicians who were interviewed. For example, if a physician were seeing an asthmatic patient, he might treat him for the current attack, advise him concerning practices which might alleviate some of the problems, and finally telephone someone responsible for residence assignments and recommend the patient be assigned an air-conditioned room. The physician under such circumstances would consider that he had engaged in the remedial measures, prevention and administration and general support categories. Put another way, many of the remedial measures recommended for the immediate or short-run time frame might be considered a preventive measure in the intermediate or long term. This did not prove to be a serious problem but should be anticipated when working with personnel in the health care area. The potential problem may be solved by spending more time discussing this aspect of PPBS. The importance of the delineation becomes more apparent to most physicians when the need to evaluate the effectiveness of the various program categories, subcategories and elements is explained to them as necessary for justification of needed financial support. This very difficult problem was discussed in some detail in Chapter IV and will be further expanded upon later in this chapter.

*Interdisciplinary Approach*

The interdisciplinary task force formed at the SHS and consisting of professional as well as administrative personnel proved to be highly successful. Certainly the leadership provided by the Director contributed to the fact that the SHS seemed to implement PPBS more successfully than in most organizations; nevertheless, in observing other organizations who had assigned implementation primarily to administrative personnel, their approach seemed much less progressive and imaginative than that of the SHS. During the task force meetings, the discussion was stimulating and the viewpoints were varied. In some instances, programs suggested by one professional were challenged by another or by the assistant in administration or by the writer. Effective defenses of program recommendations were the result. Developing the ability and the factual data necessary to defend and justify programs effectively are two of the aims of PPBS. At times the writer would research the literature and prepare a paper for discussion on a pertinent point to be discussed at a task force meeting. There was almost always assurance that the paper would be read in advance of the meeting and comments would be forthcoming and useful. This approach allowed task force members to spend more time performing their normal duties yet contribute importantly to PPBS implementation. Also, task force

members did not resist change if there seemed to be potential improvement from the change. This attitude is important if PPBS is to make progress in any organization.

*Organizational Relationships*

The SHS is administratively accountable to the Provost, J. Hillis Miller Health Center, but this relationship was minimized by the Health Center personnel during the implementation of PPBS. Although instructions and guidance were sought from administrative personnel at the Health Center, it was frequently delayed, if forthcoming at all. When information was provided it generally tended to force the SHS into a mold similar to the one developed for the five colleges at the Health Center—Medicine, Dentistry, Pharmacy, Nursing and Health Related Professions. This practice was clearly inappropriate on most occasions. On the other hand, administrative personnel at the Health Center were not hesitant in setting very short deadlines for the SHS to meet. Communications between the administrative personnel of the two organizations, and failure to transmit available instructions to the SHS in a timely manner, caused considerable extra work for the SHS staff. Communication between the Director of the SHS and the Provost appeared to be completely satisfactory although there were no written guidelines or policies concerning this

relationship; the only communications problem appeared at the administrative level.

*An Appraisal*

Although it is too early to draw firm conclusions concerning the value of the PPBS approach to the SHS, it tentatively appears to be favorable. PPBS could be more accurate than the former budgeting system because expenditures in many cases can now be more specifically identified. The method of determining the allocation of costs in this first attempt might very well be questioned. In fairness, however, it should be pointed out that the preparation time was short and guidance was unclear. Also, some staff personnel at the SHS were involved but many others were not; therefore, it was necessary for the budgeting officer to make some rather arbitrary decisions in this matter. In this connection, it was observed that several staff members were not particularly interested in becoming involved in PPBS. Planning is a difficult job and requires "hard" thinking. Many of the personnel in the SHS, as in other specialized endeavors, seemed to accomplish their demanding special tasks during the normal work day in a competent and enthusiastic manner but preferred then to go home and not think about "the office" or PPBS and its related

problems. This is not an unusual reaction, especially when the process is rushed and little orientation is provided.

The other side of the cost-benefit relationship was also a problem. The determination of benefits or measurement of program effectiveness was perhaps the most difficult and possibly the most important problem related to the implementation of PPBS. Measurements which could reasonably be made in this short period were ones which could be made primarily on the basis of experience and were rather obvious. However, much was accomplished in that an approach was developed, it is believed, which will aid in program evaluation in future years. It will be presented as a recommendation later in this chapter.

Also requiring personnel to develop a program structure which portrayed what they were doing in terms of programs and further requiring them to state objectives of these programs and then justify the programs was difficult but very useful. It required the staff to think in terms of what they were doing, how effectively they were doing it and what they would be doing in the future. Personnel in a dynamic area such as health care must be required to develop objectives and refine and update them as well as to justify their present and planned programs in terms of acceptable benefits and reasonable costs. PPBS provides a potentially useful vehicle. Although the staff of the SHS

tended to be impatient in seeking immediate results of the PPBS undertaking, the outcome seemed very acceptable and satisfactory under the circumstances.

### *Recommendations*

#### *Implementation*

In order to avoid much of the frustration, confusion and the relatively poor quality of university PPBS submissions, several positive and realistic actions can be taken. First, responsibility for the implementation of PPBS should not be divided between the Executive Vice President and the Vice President for Academic Affairs. It seems more reasonable to assign the responsibility to the Executive Vice President since there are other than academic organizations in the university. Single rather than split responsibility would serve to avoid gaps and overlaps in authority and accountability.

Second, additional personnel qualified in PPBS should be assigned to the office directly in charge of PPBS implementation. If persons who are not already qualified cannot be recruited, then available employees should be trained. Several universities and the Federal Government provide such training or can suggest materials so that a program at the University of Florida could be established. A university would seem to have more potential talent than

most settings to develop such a program. This training program could be expanded as needed and developed into a course to which other agencies within the state could send their personnel for orientation and training. When personnel are sufficiently knowledgeable in the PPBS concept to work in the university administration, each could be assigned to assist a specific organization or organizations so that he could develop expertise in the operations of the particular unit(s). Frequent workshops should be established so that as many affected employees as practicable can become familiar with PPBS. It is not necessary that they all become expert analysts but they should know how to use PPBS and what to expect and require from it. Further, by discussing its advantages and pointing out its value, much of the resistance to PPBS might disappear.

Third, the Federal Government should be consulted as much as possible during the implementation period for several reasons. It has encouraged the implementation of PPBS in the past in the form of grants and technical assistance. Much information is available in the form of agency instructions which may be applied to a local situation and in numerous congressional documents which point out pitfalls encountered and errors made by the Federal Government. A knowledge of these documents by the appropriate persons would have been helpful in foreseeing

potential problems and thus avoiding some of the errors made at the University of Florida in its initial attempt at implementing the PPBS. Since many of the funds at the University of Florida, and especially in the health care area, come from the Federal Government, justification consistent with analytic processes of various federal agencies might improve chances for approval for requests for funds.

Next, emphasis should be placed on major program issues rather than trying to analyze or at least describe the entire program structure. Certainly there will be some issues which will require careful analytical studies; however, much of the activity in a program structure is routine and need not be discussed. As the organization's analytic capability increases, the required analytic studies may be accelerated accordingly.

Finally, specific instructions of a routine nature (e.g., time schedules, formats and certain procedures) should be published in an operating manual. Care should be taken to avoid standardizing tasks where originality should be encouraged (such as in the development of a program structure). Such a manual, and subsequent changes as needed, published by the Office of the Executive Vice President and distributed to each person responsible for preparation of PPBS material would eliminate much current confusion and lack of direction.

*Familiarization with PPBS of Florida State Legislators*

Special efforts should be exerted to familiarize members of the Florida State legislature with the concepts and principles of PPBS. While it has not been the present purpose to examine the implementation of PPBS at the level of state government, a most important caveat must be suggested. If the state legislature and especially its budget committees do not familiarize themselves with PPBS procedures and goals and continue to think only in terms of incremental budgets, PPBS will fail of its intended purposes. Further, the dual effort required to justify budget requests in two ways will be wasteful.

*Organizational Relationships*

The organizational relationships between the J. Hillis Miller Health Center and the Student Health Service seem to be somewhat nebulous in that inconsistencies appeared at times during this research. The organizational chart for the SHS indicates that the Director, SHS is administratively accountable to the Provost, J. Hillis Miller Health Center; however, responsibilities and lines of communication appeared to be unclear between administrative personnel of the organizations. Therefore, at times during the PPBS implementation, the SHS received no guidance from the Health Center or from the university administration.

On other occasions, an original instruction was received but changes were not. The result was unnecessary work and short deadlines for the SHS staff. The university administration could communicate instructions directly to the SHS and require coordination with the Health Center or instructions could be relayed by the Health Center. In either case, the procedure should be formalized. It is not the intent to formalize organizational relationships to the point of rigidity, but the current loose arrangements can cause frustration and inefficiency.

With regard to the implementation of PPBS, the section chiefs should be required to become more involved in the determination of costs and benefits associated with activities in their units. This will require time spent in familiarization programs but the result should be more accurate allocations of costs and measures of program effectiveness since these persons should be most knowledgeable regarding activities in their units.

#### *Program Evaluation*

It would be useful to evaluate the effectiveness of the health service programs of the SHS and the utilization of its facilities by students. This would provide benefit measures which are needed to perform cost-benefit analyses.

Probably some significant advances toward gathering useful information for purposes of program evaluation at the SHS can be made by using data already available, by expanding and modifying methods of gathering data now used and by developing new methods of gathering necessary data.

While it may be unlikely, it perhaps would not be unreasonable to assume that the aforementioned groups of medical and nursing students are a representative sample of all students at the University of Florida from the standpoint of health conditions, since physical examination data are available and would probably provide useful experience in developing evaluation procedures and techniques. Physical examination data have been standardized so the degree of variation between these groups could be checked. Nursing and medical students have been undergoing tests in the polyphasic health testing program now for about three years; therefore, this information could be useful and should be supplemented with personal interviews with these students to learn some specific information concerning their health practices. As mentioned earlier, polyphasic health testing can provide good morbidity statistics and baseline data at important periods of an individual's life. Morbidity data on freshmen collected over several years could provide insight to the Director of the SHS concerning a useful health care program. Data collected from these same students at

graduation might assist in evaluating the SHS health care program and the utilization of these programs. The main value of polyphasic health testing, however, is to provide more precise physiological data (Clark, 1970a). This should be supplemented with interview data as above which would reveal health habits and health facilities utilization practices.

This approach would be realistic for meeting short-term needs. For the intermediate and longer terms, a program should be started now to select a good sample of students representing people living on and off campus and from all year levels including graduate students whether or not they use the SHS. This program will require time to produce sufficient useable data so it should be commenced as soon as practicable.

Interviewers should try to find out such information as how often the students were ill or did not feel well (e.g., too ill to go to school; didn't feel well but attended classes anyway), the nature of the illness, what they did about the illness (e.g., went to a physician in Gainesville; went to the SHS), why they took such action, how long until they did something about their illness, why they waited if they did wait, what type of treatment they received and other such questions which will reveal health habits and practices. Chronic health problems should be noted and studied independently.

It has been estimated by the co-director of the Student Mental Health Service that useable interview data representing 10 per cent of student population should be obtained (about 2,000) annually. Further, a properly trained interviewer should be able to interview about 500 subjects each quarter; therefore, four or five interviewers working full time or eight to ten working half time should be able to acquire the necessary data (Barger, 1970a). These interviewers could be properly trained students working in such areas as psychology, sociology and anthropology.

It would be appropriate to use polyphasic health testing along with selected members of the group being interviewed: From this, precise physiological information can be obtained. Such data cannot be obtained from interviewing because of the students' inability to diagnose health problems. To some extent it can take care of the clinical problem of gathering data. Also studies can be made of entering groups, comparative annual studies can be performed and baselines for various aspects of health can be established. It has been estimated that 500 to 1,000 annually would provide an adequate sample in health testing to establish normal physiometric parameters in healthy individuals of the college age group (Clark, 1970a). Follow-up tests would be important and desirable. A good long-term measure of program effectiveness could be established since a large percentage of students remain residents of Florida. Follow-up tests could

be made 10, 20, 30 and even 40 years later. The payoff for many health practices today often does not occur for several years. Certainly such a program would not be favored by the impatient, but it is believed that the long-term payoff could be substantial.

#### *Areas for Further Research*

Recommendations for further research in virtually all areas of PPBS would not be unrealistic. Objectives are difficult to state precisely and these can usually be improved. Program structures will probably not remain constant and they should, therefore, be continuously refined. Program evaluation or the measurement of program effectiveness is sometimes ignored because of its difficulty. This problem was stressed in Chapter IV and a recommendation was made above. This, of course, can be improved and only a beginning is recommended. The other part of cost-benefit analysis is the allocation of costs. Unless cost-benefit analyses can be performed, PPBS probably will not contribute much. Accordingly, the area which has not been addressed to any significant degree in this research and the one which requires much research is cost analysis. It is not difficult to assign costs arbitrarily to activities, but it is extremely difficult to do so with any assurance that this task has been accomplished accurately. There will ordinarily be some degree of arbitrariness involved in the allocation of

costs to activities of an organization but there are many techniques available to help do the job better. With regard to the Student Health Service at the University of Florida, the area of cost analysis requires further research most urgently.

## BIBLIOGRAPHY

- Alfandary-Alexander, Mark. *Analysis for Planning, Programming, Budgeting*. Potomac, Md.: Washington Operations Research Council, 1968.
- American Medical Association. *The Cost of Medical Care*. Report of the Commission on the Cost of Medical Care. American Medical Association, 1964.
- Andersen, Ronald, and Anderson, Odin W. *A Decade of Health Services*. Chicago: The University of Chicago Press, 1967.
- Anderson, Alice L., and Altman, Isadore. *Methodology in Evaluating the Quality of Medical Care: An Annotated Selected Bibliography, 1955-61*. Pittsburgh: University of Pittsburgh Press, 1962.
- Anthony, Robert N. *Planning and Control Systems: A Framework for Analysis*. Cambridge, Massachusetts: Harvard University Press, 1965.
- Arrow, Kenneth J. "Uncertainty and the Welfare Economics of Medical Care," *American Economic Review*, LIII (December, 1953), 941-73.
- Bateman, Worth. "Assessing Program Effectiveness," *Welfare in Review*, VI (Jan.-Feb., 1968), 1-10.
- Becker, Gary S. "A Theory of the Allocation of Time," *Economic Journal*, LXXV (September, 1965), 493-517.
- Bergman, Abraham B. (ed.). *Assessing the Effectiveness of Child Health Services*. Columbus, Ohio: Ross Laboratories, 1967.
- Black, Guy. *The Application of Systems Analysis to Government Operations*. New York: Praeger, 1968.
- Blum, Henrik L., and Leonard, Alvin R. *Public Administration—A Public Health Viewpoint*. New York: The Macmillan Co., 1963.

- Blumberg, Mark S. "Evaluating Health Screening Procedures," *Operations Research*, V (June, 1957), 351-60.
- Blumenthal, I. S. *Social Cost of Peptic Ulcer*. Santa Monica, Calif.: The RAND Corporation, P-3588, April, 1967.
- Boutwell, W. K. "A Planning, Programming and Budgeting System for the University of Florida," draft working paper. Gainesville, Florida: Office of the Vice President for Academic Affairs, University of Florida, January 26, 1970.
- Boyer, Mary G. M. "Evaluation of Hospital Care in University Student Medical Services," *Student Medicine*, VII (December, 1958), 126-42.
- Boynton, Ruth E. "The Development of Student Health Services," *Student Medicine*, I (October, 1952), 4-8.
- \_\_\_\_\_. "Historical Development of College Health Services," *Student Medicine*, X (February, 1962), 294-305.
- Braybrooke, David, and Lindblom, Charles. *A Strategy of Decision: Policy Evaluation as a Social Process*. New York: Macmillan, 1963.
- Burkhead, Jesse. *Government Budgeting*. New York: John Wiley & Co., 1956.
- Capron, William M. "PPB and State Budgeting," *Public Administration Review*, XXIX (March-April, 1969), 155-159.
- Carlson, Jack W. "The Status and Next Steps for Planning, Programming, and Budgeting." U. S. Congress, Joint Economic Committee. *The Analysis and Evaluation of Public Expenditures: The PPB System*, vol. 2, 91st Cong., 1st sess., 1969, pp. 613-798.
- Carlson, William A. "PPB Systems and Agricultural Programs," *PPB Workshop Papers*. Gainesville, Florida: Institute of Food and Agricultural Sciences, University of Florida, September, 1969, 1-32.
- Chase, Samuel E. (ed.). *Problems in Public Expenditure Analysis*. Washington: Brookings Institution, 1968.

- Chiang, C. L. *An Index of Health, Mathematical Models*. Public Health Service Publication, No. 1000-Series 2-No. 5, May 1965.
- Churchman, C. West. *The Systems Approach*. New York: Delacorte Press, 1968.
- Cleland, David I., and King, William R. (eds.). *Systems, Organizations, Analysis, Management*. New York: McGraw-Hill, 1969.
- Coggins, W. J. Memorandum to Task Force for Student Health Planning. Gainesville: University of Florida Student Health Service, July 29, 1969.
- \_\_\_\_\_ ; Thomasson, G. O.; and Clark, E. M. "Multiphasic Screening of College Students," *The Journal of the American College Health Association*, XVII (June, 1969), 419-425.
- Cohen, Wilbur. "Statement of Wilbur Cohen, Secretary-designate of the Department of Health, Education and Welfare." U. S. Congress, Senate Committee on Government Operation. *Health Care in America*, part 2, 90th Cong., 2nd sess., 1968, 485-527.
- Conant, Ralph W. *The Politics of Community Health*. Public Affairs Press, 1968.
- Conley, Ronald; Cromwell, Margaret; and Arrill, Mildred. "An Approach to Measuring the Cost of Mental Illness," *American Journal of Psychiatry*, CXXIV (December, 1967), 63-70.
- Conner, Frederick W. Memorandum to Deans and Directors (Education and General), University of Florida, Gainesville, March 6, 1970.
- Cordtz, Dan. "Change Begins in the Doctor's Office," *Fortune*, LXXXI (January, 1970), 84-89, 130-134.
- "Costly Machines to Save Lives," *Fortune*, LXXXI (January, 1970), 92-95.
- Crystal, Royal A., and Brewster, Agnes W. "Cost-Benefit Analysis in the Health Field: An Introduction," *Inquiry*, III (December, 1966), 3-13.

- Don Vito, P. A. *Annotated Bibliography on Systems Cost Analysis*. Santa Monica, Calif.: The RAND Corporation, RM-4848-1-PR, March, 1967.
- Dror, Yehezkel. *Public Policy-Making Reexamined*. San Francisco: Chandler, 1968.
- \_\_\_\_\_. "Policy Analysts: A New Professional Role in Government Service," *Public Administration Review*, XXVII (September, 1967), 200-201.
- Dublin, Louis I., and Latka, Alfred J. *The Money Value of a Man*. New York: Ronald Press, 1930.
- DuBois, Donald M. "Evaluation of Health Service Systems with Special Emphasis on College Health Services," *The Journal of the American College Health Association*, XVIII (February, 1970), 182-191.
- Due, John F., and Homes, W. Lynn. "Evaluation of Government Investment Projects," *Public Finance*, XXII (No. 3, 1967), 255-263.
- Eckstein, Otto. *Public Finance*. 2nd ed. Englewood Cliffs, N. J.: Prentice-Hall, 1967.
- Editorial Comment. "Uniformity in Reporting," *Student Medicine*, IX (February, 1961), 191-195.
- Elinson, J. "Methods of Sociomedical Research," *Handbook of Medical Sociology*, eds. H. E. Freeman, et al., 449-471. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1963.
- Enke, Stephen (ed.). *Defense Management*. Englewood Cliffs, N. J.: Prentice-Hall, 1967.
- \_\_\_\_\_. "Using Costs to Select Weapons," *American Economic Review*, LV (May, 1965), 416-426.
- Enthoven, Alain. "The Planning, Programming, and Budgeting System in the Department of Defense: Some Lessons from Experience." U. S. Congress, Joint Economic Committee. *The Analysis and Evaluation of Public Expenditures: The PPB System*, vol. III, 91st Cong., 1st sess., 1969, 901-908.

- \_\_\_\_\_. "The Systems Analysis Approach." U. S. Congress, Senate Committee on Government Operations. *Planning-Programming-Budgeting: Selected Comment*. 90th Cong., 1st sess., 1967, 1-10.
- Escarrez, Donald R. "PPBS and the National Government," *National Tax Journal*, XXI (June, 1968), 130-140.
- "Ethics and Professional Relationships: A Supplement to Recommended Standards and Practices for a College Health Program," *The Journal of the American College Health Association*, XVIII (October, 1969), 91-106.
- Faltermayer, Edmund K. "Better Care at Less Cost Without Miracles," *Fortune*, LXXXI (January, 1970), 80-83, 126-130.
- Farnsworth, Dana L. "The College Community Health Service—Impact on Lifelong Vitality and Fitness," *The Journal of the American College Health Association*, XVI (February, 1968a), 228-232.
- \_\_\_\_\_. (ed.). *College Health Administration*. New York: Appleton-Century-Crofts, 1964.
- \_\_\_\_\_. "Financing a College Health Program," *Student Medicine*, VII (December, 1968b), 143-146.
- \_\_\_\_\_. "Into the Next Century in College Health Services," *Student Medicine*, X (December, 1961), 167-177.
- \_\_\_\_\_. "The Relationship of a Student Health Service to Other University Departments," *Student Medicine*, II (October, 1958), 4-13.
- \_\_\_\_\_. "Significance of Student Health Service Buildings," *The Journal of the American College Health Association*, XI (December, 1962), 106-110.
- Fein, Rashi. "Definition and Scope of the Problem: Economic Aspects," *Assessing the Effectiveness of Child Health Services*, ed. A. B. Bergman, 44-53. Columbus, Ohio: Ross Laboratories, 1967.
- \_\_\_\_\_. *Economics of Mental Illness*. New York: Basic Books, Inc., 1958.

- Feldstein, Martin S. *Economic Analysis of Health Service Efficiency*. Amsterdam: North-Holland Publishing Co., 1967.
- \_\_\_\_\_. "Economic Analysis, Operational Research and the National Health Service," *Oxford Economic Papers*, XV (March, 1963a), 19-31.
- \_\_\_\_\_. "Opportunity Cost Calculations in Cost-Benefit Analysis," *Public Finance*, XIX (No. 2, 1964a), 117-139.
- \_\_\_\_\_. "Review of Weisbrod's *Economics of Public Health*." *Economic Journal*, LXXII (March, 1963b), 129-30.
- \_\_\_\_\_. "The Social Time Preference Discount Rate in Cost-Benefit Analysis," *Economic Journal*, LXXIV (June, 1964b), 360-379.
- Fisher, G. H. *The Analytical Bases of Systems Analysis*. Santa Monica, Calif.: The RAND Corporation, P-5365, May, 1966a.
- \_\_\_\_\_. *Some Comments on Systems Analysis*. Santa Monica, Calif.: The RAND Corporation, P-3677, September, 1967.
- \_\_\_\_\_. *Cost Functions and Budgets*. Santa Monica, Calif.: The RAND Corporation, P-3789, February, 1968.
- \_\_\_\_\_. *The World of Program Budgeting*. Santa Monica, Calif.: The RAND Corporation, P-5361, May, 1966b.
- Franklin, Billy Joe, and McLemore, S. Dale. "Attitudes Toward and Reported Utilization of a Student Health Center," *The Journal of the American College Health Association*, XVII (October, 1968), 54-59.
- Gage, Robert W. "Editorial Comment," *The Journal of the American College Health Association*, XVII (October, 1969), p. 1.
- \_\_\_\_\_. "Editorial Comment," *The Journal of the American College Health Association*, XVIII (February, 1970), 179-180.
- Ginsberg, Eli. "What Every Economist Should Know About Health and Medicine," *American Economic Review*, XLIV (March, 1954), 104-19.

- \_\_\_\_\_. and Rogatz, Peter. *Planning for Better Hospital Care*. New York: Crown Press, 1961.
- Ginsburg, Ethel L. *The College and Student Health*. New York: National Tuberculosis Association, 1955.
- Goldman, Thomas A. (ed.). *Cost-Effectiveness Analysis: New Approaches in Decision-Making*. New York: Praeger, 1967.
- Gorham, William. "Allocating Federal Resources Among Competing Social Needs," *Health, Education and Welfare Indicators*, (August, 1966), 1-13.
- \_\_\_\_\_. "Sharpening the Knife that Cuts the Public Pie," *Public Administration Review*, XXVIII (May-June, 1968), 236-241.
- Gray, Thomas J., et al. "Comparative Cost Accounting for College Health Services," *The Journal of the American College Health Association*, XVI (December, 1967), 125-130.
- Greenhouse, Samuel M. "A 'Distributed Output' Concept for the Planning-Programming-Budgeting System," *Personnel Administration*, XXI (July-August, 1967), 35-41.
- Groom, Dale. "What's Wrong with Student Health Services?" *The Journal of the American College Health Association*, XVII (October, 1968), 29-34.
- Gross, Bertram M. "The New Systems Budgeting," *Public Administration Review*, XXIX (March-April, 1969), 113-137.
- \_\_\_\_\_. *Organizations and Their Managing*. New York: Free Press, 1968.
- Grosse, Robert N. *Principles of Cost-Effectiveness Analysis*. Washington, D. C.: U. S. Industrial College of the Armed Forces, 1966.
- \_\_\_\_\_. "Problems of Resource Allocation in Health," U. S. Congress, Joint Economic Committee, *The Analysis and Evaluation of Public Expenditures: The PPB System*, vol. 3, 91st Cong., 1st sess., 1969, pp. 1197-1225.

- Haggerty, Robert J. "Evaluation of Health Services: Two Case Studies," *Assessing the Effectiveness of Child Health Services*, ed. A. B. Bergman, 62-68. Columbus, Ohio: Ross Laboratories, 1967.
- Hallan, Jerome B., and Harris, Benjamin S. H. "The Economic Cost of End-Stage Uremia," *Inquiry*, V (December, 1968), 20-25.
- Hammond, Paul Y. "A Functional Analysis of Defense Department Decision-Making in the McNamara Administration," *American Political Science Review*, LXII (March, 1968), 57-69.
- Hammond, Richard J. "Convention and Limitation in Benefit-Cost Analysis," *Natural Resources Journal*, VI (April, 1966), 195-222.
- Harris, Seymour. *The Economics of American Medicine*. New York: Macmillan, 1964.
- Hatry, Harry P. "Criteria for Evaluation in Planning State and Local Programs." U. S. Congress, Senate Committee on Government Operations. *Planning-Programming-Budgeting*. 90th Cong., 1st sess., 1967, 1-30.
- Hayzelden, J. E. "The Value of Human Life," *Public Administration* (London), XXXXVI, 427-441.
- Heiman, Grover. "Defense Reverses PPB Process," *Armed Forces Management*, February, 1970, 43-45.
- Helmer, Olaf. *Social Technology*. Santa Monica, Calif.: The RAND Corporation, February, 1965.
- Herbolsheimer, Henrietta, *et al.* "Uniformity in Reporting Morbidity and Student Health Service Activities: A Panel Discussion," *Student Medicine*, IX (February, 1961), 196-210.
- Heuston, M. C., and Ogawa, G. "Observations on the Theoretical Basis of Cost Effectiveness," *Operations Research*, XIV (March-April, 1966), 242-266.
- Hitch, C. J. "An Appreciation of Systems Analysis," *Journal of the Operations Research Society of America*, III (November, 1955), 466-481.

- \_\_\_\_\_. *Decision-Making for Defense*. Berkeley, Calif.: University of California Press, 1965.
- \_\_\_\_\_. "Decision-Making in Large Organizations." (Royal Society Nuffield Lecture, October 25, 1966). U. S. Congress, Senate Committee on Government Operations. *Planning-Programming-Budgeting: Selected Comment*. 90th Cong., 1st sess., 1967, 10-17.
- \_\_\_\_\_. "Program Budgeting: An Appraisal," *Tax Review*, VII (July, 1968), 29-32.
- \_\_\_\_\_, and McKean, R. N. *The Economics of Defense in the Nuclear Age*. Cambridge: Harvard University Press, 1960.
- Hoag, M. W. "The Relevance of Costs in Operations Research," *Operations Research*, IV (August, 1956), 448-459.
- House, William C. "Use of Sensitivity Analysis in Capital Budgeting," *Management Services*, IV (September-October, 1967), 37-40.
- Hovey, Harold A. *The Planning-Programming-Budgeting Approach to Government Decision-Making*. New York: Praeger, 1968.
- Hurtado, Edward. "Contemporary Evolution of College Health Service," *The Journal of the American College Health Association*, XI (April, 1965), 292-299.
- "It's Time to Operate," *Fortune*, LXXXI (January, 1970), p. 29.
- Jahn, Julius A. "The Statistical Design and Analysis of an Experiment to Measure the Effectiveness and Costs of a Health and Welfare Program," *Proceedings of the Social Statistics Section*, American Statistical Association, Washington, D. C., 1965, 42-50.
- Johnson, Lyndon B. "Memorandum from the President to the Heads of Departments and Agencies on the Government-Wide Planning, Programming, and Budgeting System, November 17, 1966." U. S. Congress, Senate Committee on Government Operations. *Planning-Programming-Budgeting: Official Documents*. 90th Cong., 1st sess., 1967a, 3-4.

- \_\_\_\_\_. "Statement by the President on the New Government-Wide Planning and Budgeting Systems, News Conference of August 25, 1965." U. S. Congress, Senate Committee on Government Operations. *Planning-Programming-Budgeting: Official Documents*. 90th Cong., 1st sess., 1967b, 2-3.
- \_\_\_\_\_. "Statement by the President to Cabinet Members and Agency Heads on the New Government-Wide Planning and Budgeting System, August 25, 1965." U. S. Congress, Senate Committee on Government Operations. *Planning-Programming-Budgeting: Official Documents*. 90th Cong., 1st sess., 1967c, 1-2.
- Jones, Reginald L., and Trentin, H. George. *Budgeting: Key to Planning and Control*. New York: American Management Association, Inc., 1966.
- Jones, Roger H. "Program Budgeting: Fiscal Facts and Federal Fancy," *The Quarterly Review of Economics and Business*, IX (Summer, 1969), 45-57.
- Kahn, Herman, and Mann, Irwin. *Techniques of Systems Analysis*. Santa Monica, Calif.: The RAND Corporation, RM-1829-1, 1957.
- Kaludis, George. "PPBS - 1970," presented at the University of Florida, February 13, 1970.
- Kissick, William L. "Planning, Programming and Budgeting in Health," *Medical Care*, V (July-August, 1967), 201-220.
- Klarman, Herbert E. *The Economics of Health*. New York: Columbia University Press, 1965.
- \_\_\_\_\_. "The Economics of Hospital Service," *Harvard Business Review*, XXIX (September, 1951), 71-89.
- \_\_\_\_\_. "Present Status of Cost-Benefit Analysis in the Health Field," *American Journal of Public Health*, LVII (November, 1967), 1948-1953.
- \_\_\_\_\_; Francis, John O'S.; and Rosenthal, Gerald D. "Cost-Effectiveness Analysis Applied to the Treatment of Chronic Renal Disease," *Medical Care*, VI (January-February, 1968), 48-54.
- Knorr, Klaus. "On the Cost-Effectiveness Approach to Military Research as Development," *Bulletin of the Atomic Scientists*, XXII (November, 1966), 11-14.

- Krutilla, John V. "Welfare Aspects of Benefit-Cost Analysis," *Journal of Political Economy*, LXIX (June, 1961), 226-235.
- Landgraf, Walter E. "Needed: New Perspective on Health Services," *Harvard Business Review*, XXXV (September-October, 1967), 75-85.
- Lee, Philip R. "The Federal Government and College Health: The Opportunities and Need for Creative Partnership," *The Journal of the American College Health Association*, XVI (October, 1967), 5-11.
- Lees, D. S. "The Economics of Health Services," *Lloyds Bank Review*, New Series, LVI (April, 1960), 26-40.
- Levin, Arthur L. "Cost-Effectiveness in Maternal and Child Health," *New England Journal of Medicine*, CCLXXVIII (May 9, 1968) 1041-1046.
- Levy, Michael E. "Planning-Programming-Budgeting: Government's New Tool for Improving Efficiency," *The Conference Board Record*, IV (May, 1967), 41-43.
- Lindblom, Charles. *Intelligence of Democracy*. New York: Macmillan, 1965.
- \_\_\_\_\_. "Decision-Making in Taxation and Expenditures," *Public Finances: Needs, Sources, and Utilization*, National Bureau of Economic Research. Princeton, N. J.: Princeton University Press, 1961.
- \_\_\_\_\_. "The Science of 'Muddling Through'," *Public Administration Review*, XIX (Spring, 1959), 79-88.
- Linder, Forrest E. "The Health of the American People." U. S. Congress, Senate Committee on Government Operations. *Health Care in America*, Part 1. 90th Cong., 2d sess., 1968, 360-365.
- Lyden, Fremont J., and Miller, Ernest G. (eds.). *Planning-Programming-Budgeting*. Chicago: Markham, 1967.
- McCullough, J. D. *Cost Analysis for Planning-Programming-Budgeting Cost-Benefit Studies*. Santa Monica, Calif.: The RAND Corporation, P-3479, November, 1966.
- \_\_\_\_\_. *Cost Effectiveness: Estimating Systems Costs*. Santa Monica, Calif.: The RAND Corporation, P-3229, September, 1965.

- McGilvery, Francis E. "Program and Responsibility Accounting," *Public Administration Review*, XXVII (March-April, 1968), 148-164.
- McGuire, Martin C., and Garn, Harvey A. "Problems in the Cooperative Allocation of Public Expenditures," *Quarterly Journal of Economics*, LXXVIII (February, 1969), 44-59.
- McKean, R. N. *Efficiency in Government Through Systems Analysis*. New York: John Wiley & Sons, Inc., 1958.
- \_\_\_\_\_. *Public Spending*. New York: McGraw Hill, 1968.
- Maass, Arthur. "Benefit-Cost Analysis: Its Relevance to Public Expenditure Decisions," *Quarterly Journal of Economics*, LXXX (May, 1966), 208-226.
- "Marriage and College Life," National Institute of Mental Health Project Grant MH-15041, Project Director Carl T. Clarke. Gainesville, Florida: University of Florida, 1968.
- Marshall, A. W. *Cost/Benefit Analysis in Health*. Santa Monica, Calif.: The RAND Corporation, P-3274, December, 1965.
- Maxie, E. C. "Establishing Research, Teaching and Extension Objectives and Measures of Effectiveness," *PPB Workshop Papers*. Gainesville, Florida: Institute of Food and Agricultural Sciences, University of Florida, September, 1969, 33-43.
- Mecklin, John M. "Hospitals Need Management Even More than Money," *Fortune*, LXXXI (January, 1970), 96-99, 150-151.
- Meyers, Harold B. "The Medical-Industrial Complex," *Fortune*, LXXXI (January, 1970), 90-91, 126.
- Michael, Jerrold M., et al. "An Approach to Health Planning," *Public Health Reports*, LXXXII (December, 1967), 1063-1070.
- Miller, Everett A. "Student Medical Insurance and the Health Service," *The Journal of the American College Health Association*, XI (February, 1965), 247-252.
- Moore, John R. "Cost Analysis and Budgeting in Student Health Services," *Student Medicine*, VIII (February, 1968), 257-263.

Moore, Norman., and Summerskill, John. *Health Services in American Colleges and Universities, 1953*. Ithaca, New York: Cornell University, 1954.

\_\_\_\_\_. "Questions Arising from the Survey 'Health Services in American Colleges and Universities, 1953'," *Student Medicine*, IV (October, 1955), 35-39.

Moriyama, I. M. *The Change in Mortality Trend in the United States*. Public Health Service Publication No. 1000-Series 3-No. 1, March, 1964.

Mosher, Frederick C. "Limitations and Problems of PPBS in the States," *Public Administration Review*, XXIX (March-April, 1969), 160-167.

\_\_\_\_\_. "PPBS: Two Questions," *Public Administration Review*, XXVII (March, 1967), 67-71.

\_\_\_\_\_. *Program Budgeting*. Chicago: Public Administration Service, 1954.

Muller, Charlotte. "Economic Analysis of Medical Care in the United States," *American Journal of Public Health*, LI (January, 1961), 31-42.

Mushkin, Selma. "Health as an Investment," *Journal of Political Economy*, LXX, Part 2 (October, 1962), 129-157.

\_\_\_\_\_. *Planning-Programming-Budgeting for City, State, County Objectives*. (PPB Notes 1-11). Washington, D. C.: George Washington University State-Local Finance Project, 1967-1968.

\_\_\_\_\_, and Colling, Francis d'A. "Economic Costs of Disease and Injury," *Public Health Reports*, LXXIV (September, 1959), 795-809.

Neenan, William B. *Normative Evaluation of a Public Health Program*. Ann Arbor: Institute of Public Administration, University of Michigan, 1967.

Novick, David. "Long-Range Planning Through Program Budgeting," *Business Horizons*, XII (February, 1969), 59-65.

\_\_\_\_\_. (ed.). *Program Budgeting*. Cambridge: Harvard University Press, 1965.

- \_\_\_\_\_. *Origin and History of Program Budgeting*. Santa Monica, Calif.: The RAND Corporation, P-3427, October, 1966.
- \_\_\_\_\_. *Resource Analysis and Long-Range Planning*. Santa Monica, Calif.: The RAND Corporation, RM-3658-PR, June, 1965.
- O'Connell, Stephen C. Letter to Dr. S. P. Martin, Provost, J. Hillis Miller Health Center, University of Florida, Gainesville, June 12, 1969.
- Packer, A. H. "Applying Cost-Effectiveness Concepts to the Community Health System," *Operations Research*, XVI (March-April, 1968), 227-253.
- Park, K. S., and Freeman, John R. *Community Health Resource Allocation with Linear Programming Methods*. Gainesville, Florida: Health Services Research Division, University of Florida, June, 1969.
- Pearce, D. W., and Sturmev, S. G. "Private and Social Costs and Benefits: A Note on Terminology," *Economic Journal*, LXXVI (March, 1966), 152-158.
- "Planning-Programming-Budgeting: A Symposium." *Public Administration Review*, XXVI (December, 1966), 243-310.
- "Planning-Programming-Budgeting System Reexamined: Development, Analysis, and Criticism," *Public Administration Review*, XXIX (March-April, 1969), 111-202.
- Powell, J. Enoch. *A New Look at Medicine and Politics*. Pitman Medical Publishing Co., 1966.
- Prest, A. R., and Turvey, Ralph. "Cost-Benefit Analysis: A Survey," *Economic Journal*, LXXV (December, 1965), 683-735.
- Program Memorandum, "Recommended Plan and Budget for the Student Health Service, 1971-1976." Student Health Service, University of Florida, Gainesville, undated (1970).
- Quade, E. S. (ed.). *Analysis for Military Decisions*. Chicago: Rand McNally, 1964.
- \_\_\_\_\_. *Cost-Effectiveness: An Introduction and Overview*. Santa Monica, Calif.: The RAND Corporation, P-3134, May, 1965.

- \_\_\_\_\_. *Cost Effectiveness: Some Trends in Analysis.*  
Santa Monica, Calif.: The RAND Corporation, P-3529,  
March, 1967.
- \_\_\_\_\_. *Some Problems Associated with Systems Analysis.*  
Santa Monica, Calif.: The RAND Corporation, P-3391,  
June, 1966a.
- \_\_\_\_\_. *Systems Analysis Techniques for Planning-  
Programming-Budgeting.* Santa Monica, Calif.:  
The RAND Corporation, P-3322, March, 1966b.
- Ray, Delmas D., and Crowe, Eugene B. "Planning-Pro-  
gramming-Budgeting Systems," Parts I, II, III,  
*Economic Leaflets* (University of Florida), XXVIII  
(May, June, July, 1969).
- "Recommended Standards and Practices for a College Health  
Program," *The Journal of the American College  
Health Association*, XVIII (October, 1969), 41-89.
- Rice, Dorothy P. *Estimating the Cost of Illness.* Health  
Economics Series No. 6. Public Health Service  
Publication No. 947-6, May, 1966.
- \_\_\_\_\_, and Cooper, Barbara S. "The Economic Value of  
Human Life," *American Journal of Public Health*,  
LVII (November, 1967), 1954-1966.
- Rivlin, Alice M. "The Planning, Programming, and Budgeting  
System in the Department of Health, Education and  
Welfare: Some Lessons from Experience." U. S.  
Congress, Joint Economic Committee. *The Analysis  
and Evaluation of Public Expenditures: The PPB  
System*, vol. 3, 91st Cong., 1st sess., 1969,  
pp. 909-922.
- Rowen, Henry S. "Bargaining and Analysis in Government."  
Paper delivered at Annual Meeting of the American  
Political Science Association, September 6-10, 1966.  
U. S. Congress, Senate Committee on Government  
Operations. *Planning-Programming-Budgeting:  
Selected Comment.* 90th Cong., 1st sess., 1967,  
44-49.
- Saitow, A. R. "Health Care and Private Enterprise,"  
*Business Horizons*, XIII (February, 1970), 69-78.
- Samuelson, Paul A. "Aspects of Public Expenditure Theories,"  
*Review of Economics and Statistics*, XL (November,  
1958), 352-338.

- Sanders, B. S. "Measuring Community Health Levels," *American Journal of Public Health*, LIV (July, 1964), 1063-1070.
- Schelling, Thomas C. "PPBS and Foreign Affairs," U. S. Congress, Senate Committee on Government Operations. *PPB: PPBS and Foreign Affairs*. 90th Cong., 1st sess., 1968, 1-10.
- Schlesinger, James R. "Uses and Abuses of Analysis." U. S. Congress, Senate Committee on Government Operations. *PPB: Uses and Abuses of Analysis*. 90th Cong., 2d sess., 1968, 1-12.
- Schultze, Charles L. *The Politics and Economics of Public Spending*. Washington, D. C.: U. S. Bureau of the Budget, 1968.
- Shick, Allen. *PPB's First Years: Premature and Maturing*. Washington, D. C.: The Brookings Institution, 1968.
- \_\_\_\_\_. "The Road to PPB: The Stages of Budget Reform," *Public Administration Review*, XXVI (December, 1966), 243-258.
- \_\_\_\_\_. "Systems Politics and Systems Budgeting," *Public Administration Review*, XXIX (March-April, 1969), 137-151.
- Sisler, Harry H. Letter to Dr. Edmund F. Askill, Provost, J. Hillis Miller Health Center, University of Florida, Gainesville, May 29, 1970a.
- \_\_\_\_\_. Memorandum, "Due Date for PPB Documents." University of Florida, Gainesville, May 8, 1970b.
- Smithies, Arthur. *The Budgetary Process in the United States*. New York: McGraw-Hill, 1955.
- Somers, Herman M., and Somers, Anne R. *A Program for Research in Health Economics*. Health Economics Series No. 7. Public Health Service Publication No. 947-7, January, 1967.
- Steiner, George. "Program Budgeting: Business Contribution to Government Management," *Business Horizons*, VIII (Spring, 1965), 43-52.

- Stewart, William A. "The Challenging Need for Assessment," *Assessing the Effectiveness of Child Health Services*, ed. A. B. Bergman, 9-15. Columbus, Ohio: Ross Laboratories, 1967.
- Stimson, David H. "Utility Measurement in Public Health Decision-Making," *Management Science*, XVI (October, 1969), B-17-B-30.
- Sullivan, Daniel F. *Conceptual Problems in Developing an Index of Health*. Public Health Service Publication No. 1000, Series 2, No. 17, May, 1966.
- Summerskill, John. "Health Services in American Colleges and Universities, 1953: A Summary," *The College and Student Health*, ed. E. L. Ginsburg. Appendix A, 65-75. New York: National Tuberculosis Association, 1955.
- U. S. Bureau of the Budget Library. *Program Analysis Techniques: A Selected Bibliography*. December, 1965.
- \_\_\_\_\_. *Program Analysis Techniques: A Selected Bibliography*. rev. November, 1966.
- \_\_\_\_\_. *Program Analysis Techniques: A Selected Bibliography*. rev., supp. I, July, 1967.
- \_\_\_\_\_. *Program Analysis Techniques: A Selected Bibliography*. rev., supp. II, April, 1969.
- U. S. Congress. Joint Economic Committee. *The Analysis and Evaluation of Public Expenditures: The PPB System*, Vols. I, II, III. 91st Cong., 1st sess., 1969a.
- \_\_\_\_\_. Joint Economic Committee. *Hearings on the Planning-Programming-Budgeting System: Progress and Potentials*. 90th Cong., 1st sess., 1967a.
- \_\_\_\_\_. Joint Economic Committee. *Report on the Planning-Programming-Budgeting System: Progress and Potentials*. 90th Cong., 1st sess., 1967b.
- \_\_\_\_\_. Senate Committee on Government Operations. *Health Care in America*, Parts 1, 2. 90th Cong., 2d sess., 1969b.

- \_\_\_\_\_. Senate Committee on Government Operations.  
*Hearings on Planning-Programming-Budgeting*, Parts  
1, 2, 3, 4. 90th Cong., 1st sess., 1967c.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Budget Bureau  
Guidelines of 1968*. 90th Cong., 2d sess., 1968a.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Criteria for  
Evaluation in Planning State and Local Programs*.  
90th Cong., 1st sess., 1967d.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Initial Memorandum*.  
90th Cong., 1st sess., 1967e.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Interim Obser-  
vations*. 90th Cong., 2d sess., 1968b.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Official Documents*.  
90th Cong., 1st sess., 1967f.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Program Budgeting  
in Foreign Affairs*. 90th Cong., 2d sess., 1968c.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: PPBS and Foreign  
Affairs*. 90th Cong., 1st sess., 1968d.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Rescuing Policy  
Analysis from PPBS*. 91st Cong., 1st sess., 1969c.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Selected Comment*.  
90th Cong., 1st sess., 1967g.
- \_\_\_\_\_. Senate Committee on Government Operations.  
*Planning-Programming-Budgeting: Uses and Abuses  
of Analysis*. 90th Cong., 2d sess., 1968e.
- U. S. Department of Defense. *Significant Documents on PPBS  
in the Department of Defense*. Washington, D. C.:  
Department of Defense, 1969.

U. S. Department of Health, Education and Welfare. *Economic Benefits from Public Health Services*. Public Health Service Document No. 1178, 1964.

\_\_\_\_\_. *Kidney Disease; Program Analysis*. Public Health Service Publication No. 1745, 1968a.

\_\_\_\_\_. *A Report to the President on Medical Care Prices*. Washington, D. C.: U. S. Government Printing Office, 1967a.

\_\_\_\_\_. Office of the Assistant Secretary (Planning and Evaluation). *Planning-Programming-Budgeting: Guidance for Program and Financial Plan*. rev., February, 1968b.

\_\_\_\_\_. Office of Planning and Evaluation. *Some Thoughts on the Allocation of Resources to Biomedical Research*. November, 1967b. (Occasional Paper No. 4.)

\_\_\_\_\_. Office of Program Coordination. *Arthritis*. September, 1966a. (Program Analysis 1966-4; Disease Control Programs.)

\_\_\_\_\_. Office of Program Coordination. *Cancer*. October, 1966b. (Program Analysis 1966-5; Disease Control Programs.)

\_\_\_\_\_. Office of Program Coordination. *Maternal and Child Health Care Programs*. October, 1966c. (Program Analysis 1966-6.)

\_\_\_\_\_. Office of Program Coordination. *Motor Vehicle Injury Prevention Program*. August, 1966d. (Program Analysis 1966-1; Disease Control Programs.)

\_\_\_\_\_. Office of Program Coordination. *Problems of Assessing the Effectiveness of Child Health Services: Economic Aspects*. May 5, 1967c. (Occasional Paper No. 1.)

\_\_\_\_\_. Office of Program Coordination. *Selected Disease Control Program*. September, 1966e. (Program Analysis 1966-5; Disease Control Programs.)

U. S. President. President's Commission on the Health Needs of the Nation. *Building America's Health*. Washington, D. C.: U. S. Government Printing Office, 1952.

- Weisbrod, Burton A. *Economics of Public Health*. Philadelphia: University of Pennsylvania Press, 1961.
- White, Kerr L. "Definition and Scope of Problems: Medical Aspects," *Assessing the Effectiveness of Child Health Services*, ed. A. B. Bergman, 24-33. Columbus, Ohio: Ross Laboratories, 1967.
- Wildavsky, Aaron. "The Political Economy of Efficiency: Cost-Benefit Analysis, Systems Analysis, and Program Budgeting," *Public Administration Review*, XXVI (December, 1966), 292-310.
- \_\_\_\_\_. *The Politics of the Budgetary Process*. Boston: Little, Brown and Co., 1964.
- \_\_\_\_\_. "Rescuing Policy Analysis from PPBS," *Public Administration Review*, XXIX (March-April, 1969), 189-202.
- Williams, Harry. *Planning for Effective Resource Allocation in Universities*. Washington, D. C.: American Council on Education, 1966.
- Wiseman, Jack. "Cost-Benefit Analysis and Health Service Policy," *Public Expenditure: Appraisal and Control*, eds. A. D. Peacock and D. J. Robertson, 128-145. Edinburgh: Oliver and Boyd, 1963.

*Personal Communications*

- Averill, Barry W. Personal letter, January 5, 1970.
- Barger, B. Co-Director, Mental Health Project, Student Health Service, University of Florida. Interviews: June 23, 1970a, and July 16, 1970b.
- Clark, E. M. University Physician, Student Health Service, University of Florida. Interviews: June 24, 1970a, and July 15, 1970b.
- Coggins, W. J. Director, Student Health Service, University of Florida. Interviews: January 28, 1970a, May 24, 1970b, and July 15, 1970c.
- Pritz, Stephen. Assistant in Administration, Student Health Service, University of Florida. Interviews: May 11, 1970a, and July 16, 1970b.

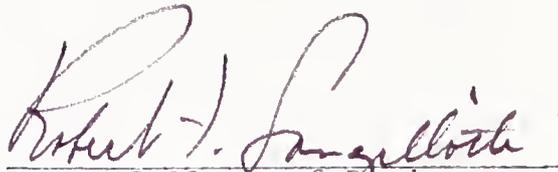
## BIOGRAPHICAL SKETCH

Waldron Berry was born April 2, 1924, at Freetown, Indiana. In June, 1942, he was graduated as valedictorian of his class from Shields High School, Seymour, Indiana. After attending Purdue University for one year, he received an appointment to the United States Military Academy at West Point. Upon graduation with the degree of Bachelor of Science in June, 1946, he was commissioned an officer and a pilot in the United States Army Air Corps. He served in the United States Air Force until July, 1967. He was stationed in Florida, Texas, and the Far East, was a prisoner of war in Korea for 34 months, and was stationed in Washington, D. C., Europe and Indiana. In 1955 he received the degree of Master of Arts in Government with a major in Economics and Politics from The George Washington University. In 1965 he received the degree of Master of Business Administration (with honors) with a major in Management and Administrative Studies from Indiana University. In 1967 he enrolled in the Graduate School of the University of Florida, and since that time has pursued his work toward the degree of Doctor of Philosophy with a major in Management.

Waldron Berry is married to the former Dorothy Teuscher. He is a member of Phi Delta Theta, Beta Gamma Sigma, and the Academy of Management.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Business Administration and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

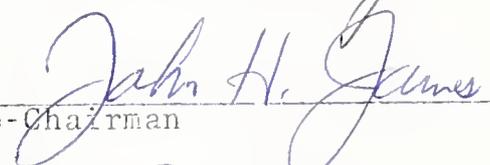
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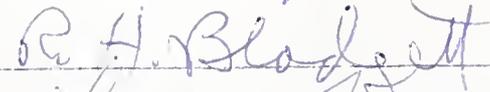
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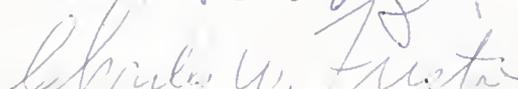
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