

A SYSTEMS APPROACH TO HEALTH INSURANCE POLICY INFORMATION

A PRELIMINARY TAXONOMY OF HEALTH INSURANCE ISSUES, PROGRAM OPTIONS, PROBLEMS AND SOLUTIONS

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Abstract—A methodology is proposed for assisting health insurance policy analysts by developing a systems approach to health insurance information and literature. The general approach is to supply a link between the quantitative and qualitative information available, and the analytic needs of policy analysts. There is a great deal of information available, but traditional cataloging and indexing techniques do not adequately meet the policy researcher's and analyst's information needs. The most important of these once goals and limitations are identified, is knowledge of the interrelationships between program options in terms of expected results (problems, solutions) in a wide range of settings.

The key element of the approach used is the concept of an information frame, based on considering health insurance as systems of issues, program options, problems, and solutions with interrelationships explicitly defined. This approach would provide initially qualitative identification of these interrelationships and make them available via a machine readable taxonomy of the components. With substantiating literature references, preliminary work on the building of the taxonomy is based on seven major health insurance issues, and over 70 program options, 325 problems, and 350 solutions so far identified for 170 of the problems. The implementation of this methodology would provide analytically structured information for policy analysts in a format not presently available. The multi-country information to be included would allow consideration of alternatives which might otherwise be neglected. The result would improve an important element of the analytic process, and reduce the lead time required for inquiries by health insurance policy analysts, legislators, health planners and administrators.

1. INTRODUCTION

In a rational model, policy analysis, as a search for ways of determining preferred policies, should be able to consider as many options as possible. Recognition of the desirability of expanding the range of policy options as a means to more rational policy outcomes has led to an increasing interest in cross-national studies. The number of such studies has greatly increased in the past decade and shows every indication of continuing to do so [1]. A recent publication by HEW and NSF indexes some 4000 selected books and articles on the effectiveness and efficiency of alternative programs in health and social welfare [2]. The growing amount of information available in health insurance and health system programs is, however, inadequately structured for easy access particularly with regard to actual experience with various program options.

Thus, the policy analyst is still faced with the task of having to make decisions based on whatever information he is able to assimilate. To the extent that the information can be systematically structured his burden can be lightened. Jay Forrester has maintained that without an integrating structure, information remains a hodge podge of fragments. "When a structure and governing principles for systems have been accepted, they should go far to explain the contradictions, clarify

the ambiguities and resolve the controversies in the social sciences" [3].

Faced with the challenge to review health insurance in an extremely concise manner, one of the writers developed for teaching purposes a conceptual listing of health insurance issues, problems and solutions in early 1975. Subsequently this approach was encouraged as well as assisted by the academic environment[†] of the authors and expanded into a project to establish a systematic information frame for eventual indexing of literature and other reports relevant to health insurance. The usefulness of the information frame was tested by collecting a set of references for application of program options and solutions in several European countries and linking them to the information frame. Eighty-five of these earlier generated solutions were thus verified in practice in various European countries. This trial run proved encouraging as a potentially useful method for structuring information about alternative approaches in health insurance policy in the countries examined. This paper describes an attempt to apply this basic concept of a systematic structure to the organizing of information on comparative health insurance policies. While specific to a particular substantive area, the framework should also be generally applicable to comparative policy analysis.

Comparative policy analysis provides material for evaluating alternatives among possible choices by looking at their recorded or probable effects. Comparative research many times will reveal what is possible under certain conditions rather than what is explicitly desirable

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or transportable directly to another social setting. The overall goal of the present activity is to improve the decision making process by improving on one important input to the analytic process—comparative information on alternative solutions and problems in health insurance policy. The detailed objectives of the project are as follows:

(1) To establish a computer stored taxonomy of major issues, program options, problems, and potential solutions involved in health insurance policy decisions.

(2) To establish a capacity to identify for health insurance policy analysts qualitative interdependencies among issues, program options, problems and solutions.

(3) To establish a comprehensive identification of actual applications of program options and potential solutions by health insurance systems, within the U.S. and abroad.

(4) To establish a selective listing of references from published literature and annual and other reports of health insurance systems linked to a taxonomy created and coded to indicate the type of information contained therein (e.g. resource requirements, program outcomes, theoretical references, etc.).

2. BACKGROUND

One of the most important health and social policy questions today in many countries is that of the choice of the preferred mode of financing and delivering health care to the population. In the broadest view a country's health insurance scheme is a projection of its overt and covert social goals in all the modes of financing and delivering health and medical care and health related activities, as contributions to overall social welfare. A range of societal goals is involved which often conflict with each other in actual implementation, such as the trade-off between equity and efficiency. While Roemer and Axelrod considered four possible combinations of modes of financing and delivery for *broad* policy consideration[4], many more alternatives could be generated for purposes of mapping a new health insurance system and its actual application.

While some issues and several program options are determined by the social-political environment, other issues and many program options are compatible with different yet related social-political systems, particularly with regard to equity considerations and to incentives and disincentives for both providers and consumers. Furthermore, the commonality of problems encountered in implementing program options and solutions to cope with such problems is probably greater than often recognized, possibly because of the lack of comparative studies.

Because of the close interdependencies among the various possible options and their resultant positive or negative effects, health insurance or health care financing policies which address a single problem, for example easing the financial burden of hospital care only, may fail to achieve these objectives or may even have counter-productive results[5, 6]. Nor can health insurance policy be considered in isolation from many other social service needs and provisions, such as care for the elderly, workmen's compensation benefits, child day care facilities, etc., extending the interdependencies beyond health insurance *per se*.

The issues, encompassing a complex range of concerns, vary among countries and often within one country. Major obstacles in implementing or managing a

health insurance program can arise from neglected differences in socio-political values among sub-groups in a particular society. It is often overlooked that while it is technically possible to impose a uniform health insurance program on a society in which diverse social values are held, value conflicts among competing interest groups may remain unresolved. These latent conflicts are likely later to lead to unplanned consequences of implemented programs (e.g. Medicaid's excessive cost-escalation[7], Canada's growth of hospital beds and their costs over the past two decades[8]). Unanticipated consequences of the sort experienced in the U.S. and Canada are less likely to occur when a very strong, centralized governmental authority imposes one set of values on all. (China[9], U.S.S.R.[10]).

If the need of the policy analyst is correctly postulated as particularly directed to the interrelatedness of program options and their effects, then the scope of much of the available literature does not address itself to that specific need. There are many comprehensive studies of a descriptive nature (Roemer[11], Simanis[12], Fry and Farndale[13], Fulcher[14], Van Langendonck[15], U.S. Congressional Studies[16], K. Davis[17]), while others endeavor to explore interrelationships of a range of issues and program options (Donabedian[18], Berki[19], M. Feldstein[20], Somers[21]). However, the problem of the interdependence of health insurance activities has not been adequately addressed from a comprehensive systems point of view. The complexity of health insurance problems *per se* and the considerable interrelationships among health insurance options and other social programs and systems make health insurance systems well beyond individual investigation[22].

Thus, health care system analysis requires a considerable amount of manpower time to explore sources of information for each policy issue at the varying levels of decision making—federal or central, state, county and city. Many approaches to analysis are used. In health and social planning, it has been common to look extensively at data collected from within one's own country and, by modifying or adjusting for different assumptions about such variables as population mix, incomes, age distributions, use rates, etc. to make rational decisions about the preferred course of action[23].

A recent approach, proposed by some as an improvement over merely attempting to extrapolate from existing data to reach rational conclusions, is the controlled field experiment or special study. The experimental model approach has been used in the United States in attempts to estimate the probable effects of income maintenance programs[24], and of housing allowances[25]. The experimental model has even been proposed as a useful tool for evaluating national health insurance proposals[26]. However, the use of controlled experiments as tools for social planning has been criticized since so many of the necessary criteria and assumptions of controlled experiments are violated in complicated social action and health related programs[27]. In fact, some maintain that the modern techniques in policy analysis which have been pursued with such great optimism in the areas of public housing, manpower training, etc. have had few if any striking successes, partially due to a failure of the analysts to appreciate the complexity of the tasks they were facing[28]. The complexity arises because, inevitably, goals, the resultant programs and their results are all highly interrelated and interdependent. Levin, Roberts

and Hirsch in a more recent approach to policy analysis, applied the theory of systems dynamics to complex social problems, in particular to the specification of the U.S. heroin problem in terms of a closed, or feedback, dynamic system[29].

Useful information has come from the above approaches in some settings, however, they primarily focus on activities and observations within a single society or section of the country. Improved generation of alternatives could result from the consideration of a wider range of possible alternatives, particularly those which tap cross-national experience. The proposed methodology not only would offer more observations than are currently available to the above approaches, but would include qualitative and descriptive evaluative data collected for a wide range of alternative activities. This, along with qualitatively determined interrelationships between the alternatives will serve to complement and assist the above and other approaches, adding alternatives and relationships for testing and scrutiny.

A central component for this process is the development of a systems framework for health insurance issues, program options, problems and solutions on which to build an information base containing structured data elements on a broad range of alternative activities, derived from literature searches and other sources.

3. A SYSTEMS CONCEPT FOR A HEALTH INSURANCE POLICY INFORMATION FRAME

The essence of the presented activity lies in the recognition of two important factors: (1) the need to recognize the interactions that characterize health insurance as a system, and (2) the need for analysts and decision makers to try to consider as many reasonable alternative activities as possible. A principle rationale behind the present attempt at defining health insurance as a system relates to the importance which Forrester gives to systems as the building blocks for understanding complex dynamic behavior by way of the theory of system dynamics[3].

In this view of health insurance the dynamics of the system are initially set in motion by the broad health insurance goals determined by the social values and political will of a society. A health insurance goal here is a category of concerns less specific than the term objectives as used in the usual planning and evaluation context, but yet more operational than a mere statement of societal values. Seven areas or issues have been used to define goals within the current project and are intended

to be the basic categories for the major grouping of alternative activities which aim toward the ultimate goal of a healthy society. These goals are listed in Table 1.

The primary means by which attainment of a society's health insurance goals is attempted is by implementation of various program options. The health insurance goals can be thought of as requiring program options aiming at their fulfillment. On the other hand, the very existence of certain programs may serve as a controlling or guiding factor in terms of which broad goals are pursued and with what degree of intensity. In this way there is a kind of synergism between program options and goals so that in most cases neither can be looked at separately, and it may become very difficult to separate out which force has brought a certain set of program options into being. The program options are broad sets of activities, and in the context of this project, may also include many activities not necessarily already in existence.

From the program options, we can project subsequent outcomes either empirically or hypothetically. Some of the outcomes will, it is hoped, be positive and to that extent some attainment of the major goal is achieved. Because all social programs have a variety of impacts, however, the results of any one of them may be felt in areas other than the specific one initially intended. The consequences of a program may be beneficial and expected, but with most activities, because it is inherently impossible for one activity to be all things for all segments of a population, some of the consequences of a program may be undesirable and these undesirable effects may need to be counteracted or corrected by other activities. The undesirable consequences are grouped under the broad category *problems*, and the various attempts at their correction, under *solutions*. There is an interaction between each of these levels of activities—the issues and program options affecting each other, while program options and “problems” shape each other, equally as do problems and the solutions tried to correct them. The success or failure of the solutions affect in turn the continued or modified pursuit of the original and other goals. Desirable effects of a program option often constitute a solution to a problem inherent in some other program option. A few examples may illustrate the concept.

There are many different kinds of problems that arise when implementing programs for health insurance goals. A restricted categorization of them would be deficiencies, negative results and constraints. A deficiency would be a structural inadequacy resulting in failure to obtain fulfillment of an objective because of neglect or exclud-

Table 1. Seven major goals of health insurance

1)	Promote access to medical care.
2)	Contain indirect financial burden of illness on the individual consumer.
3)	Contain direct financial burden of illness on the individual consumer.
4)	Promote efficient remuneration of providers.
5)	Containment of overall cost of medical care.
6)	Secure appropriate medical care.
7.	Promote preventive health care.

ing a segment of the population or area of concern. For example, lack of coverage of the unemployed is a deficiencies in health insurance schemes linked to employers. Negative results are process outcomes resulting from implementation of a program option, e.g. some undesirable impacts either directly or indirectly to some segment of the target population or area of concern, or with respect to some other issue under consideration in this activity. An example would be excessive laboratory or surgical procedures resulting from expanded coverage. One class of problems more difficult to identify without ambiguity would be program constraints. These would be limitations in the environment of a program option, which imply the need for avoidance of compensation. Problems in this category may flow from such social factors as regional or cultural patterns of health care utilization and health behavior practices which may constrain access or stimulate overutilization of services.

Problems, and indeed solutions as well, can be defined only in the context of an existing set of criteria for their classification and identification. These criteria depend almost totally for their definition on the social values and priorities of the society. The criteria of equity, efficiency and illness cost risk sharing have been proposed for the current project. Identification of health insurance system components in the above format, along with literature references linked to them, form the basis for a health insurance information base to serve as an important but currently lacking input into the policy analysis process.

Figure 1 shows a summary of the proposed health insurance project, emphasizing that the analytic process is served by the project rather than subsumed within it.

Obviously the boundaries in any attempt at a systems view can not always be formulated definitively, and in social policy even less so. In health promotion many other social activities play a crucial, if not overriding role, the contribution of medical services to overall health status being increasingly questioned [8]. Yet health insurance's main concern is medical care, even preventive care being often totally or partially provided by public health activities. Many important preventive activities are partly or completely outside the reach of medical care in different areas of social action, be it the behavior of the individual or family, the compliance with immunization provisions, the use of destructive weapons in inter-personal conflict, the safety at work, the protection of the environment, etc. all of which can affect health and the cost of medical care and health insurance considerably. From this point of view it becomes all the more apparent that medical care is but one of the contributors to social welfare (Margot Jeffereys [31]) and that the socio-political values entertained by any society are basic to health behavior and health care. This paper does not pretend to extend its boundaries into these manifold areas of social concern, yet does not intend to neglect their existence. A projection of the interdependencies of these various social concerns with health insurance policy design is provided in Fig. 2.

The uniqueness of the present approach lies in the existence of well defined cross linkages among the four elements within the formulated system. Indeed, not only can an activity appear as a "solution" for many "problems", but in some cases an activity may be a valid program option under consideration of one issue, and the undesirable result, or problem, in another with its particular solutions.

4. PROPOSED DEVELOPMENT OF A HEALTH INSURANCE INFORMATION FRAME SCOPE

Current state of the art work in library science has developed several comprehensive multi-coordinate word indexes for many fields of study. The most elaborate of these have been prepared for the areas of medicine and biological sciences (MEDLARS, *Science Citation Index*). Word indexes also exists for the social sciences but to date are not as comprehensive as those for the exact sciences [32]. These extensive data collections may be based on multiple keywords from previously written abstracts, title keywords, or subject content of the current literature. Such abstracting and indexing, while immensely worthwhile and essential in medical and scientific fields for many purposes, is not what the current activity proposes to do. Rather, it is the creation and use of a taxonomy of health insurance issues, options, problems, and solutions that forms a key element of the proposed information frame.

It is clear that the development of consistent typologies in the social and political sciences lags far behind such development in the natural sciences. This is no doubt related to the difficulty of trying to relate complex social problems and solutions to a clearly categorized indexing scheme. Also, the time frames for problem solving, policy analysis, and decision making in the highly politicized social structures is considerably shorter than in such academic disciplines as mathematics, statistics, or biology, discouraging the considerably time-demanding efforts in this direction.

Establishing a taxonomy of categories of knowledge is a laborious endeavor in any field, and for health insurance problems as a part of the social sciences possibly more so than in some other sciences. On the other hand the first application of a discipline to a field so far untouched usually appears more complex than already existing applications, without necessarily being so, since the earlier applications have partly lost their image of complexity and laboriousness as a result of work already accomplished.

The establishment and maintenance of indexed reference collections is labor intensive and costly, due to the tremendous volume of information indexed. However, as emphasized earlier, comprehensiveness in the mode of indexes such as MEDLARS and Scientific Citations Index is not envisaged here. Rather only articles and reports containing information relevant to the information frame or for expanding this frame would be selected. As a result it is expected that the information base will be much smaller in size than those currently in use and maintained for the more conventional library searchers. In contrast to conventional indexes, the coding of the information will require more careful attention and understanding of the contents of the references found, since the aim is not to create merely a keyword reference, but to identify the kind of information contained in the reference (e.g. type of political system, resources identified, quantitative results) and link it logically to the information frame (see Fig. 3).

It is expected that such indexing will require more specially trained indexers than normally used for abstracting of articles, etc. and that extra attention will have to be given to the crucial problems of inter-coder reliability. Much use will be made of the existing multi-coordinate indexed systems, but this will by no means be the only source of input to the information base. Actual experience with health insurance options is not always

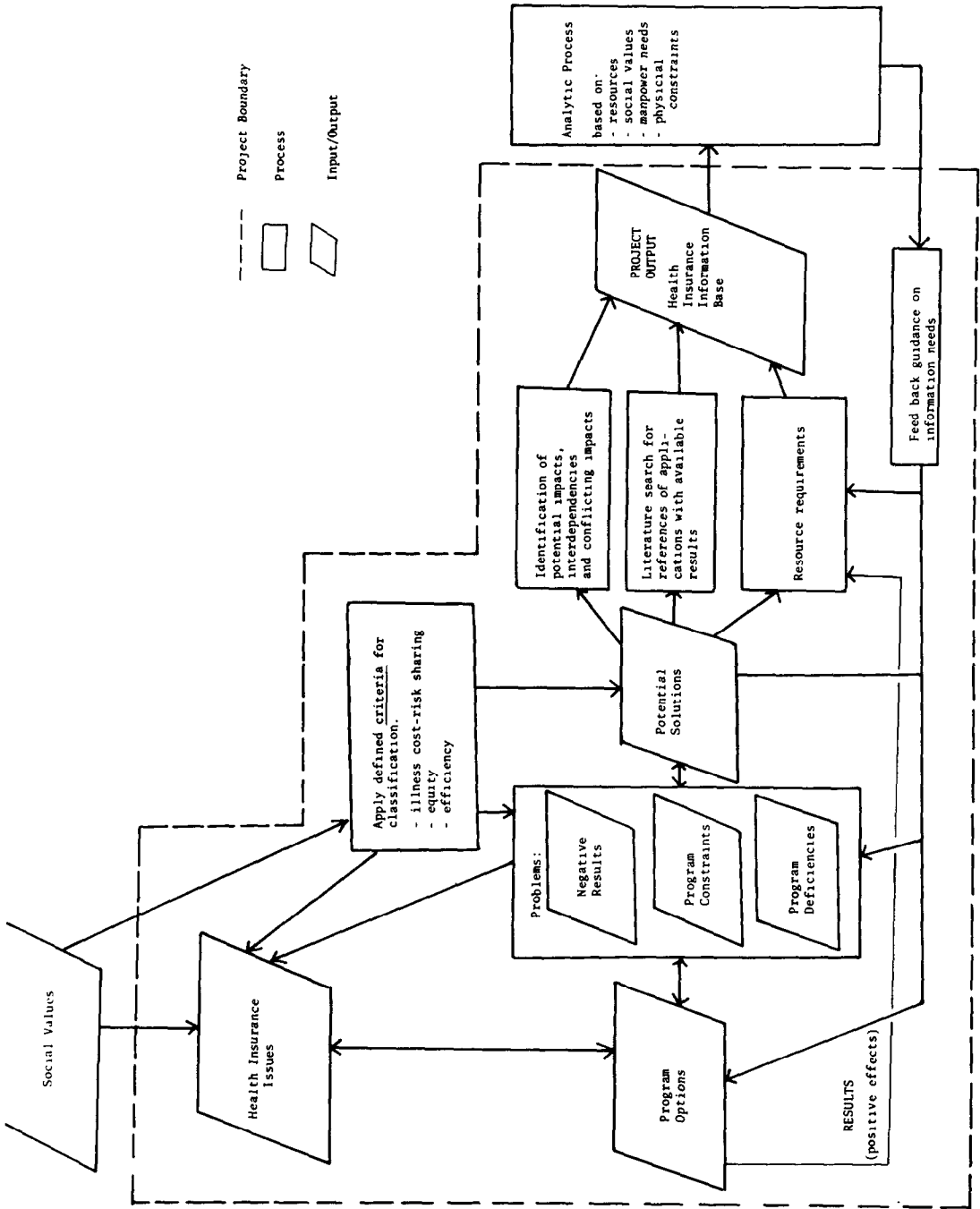


Fig. 1. Systems approach to health insurance policy information.

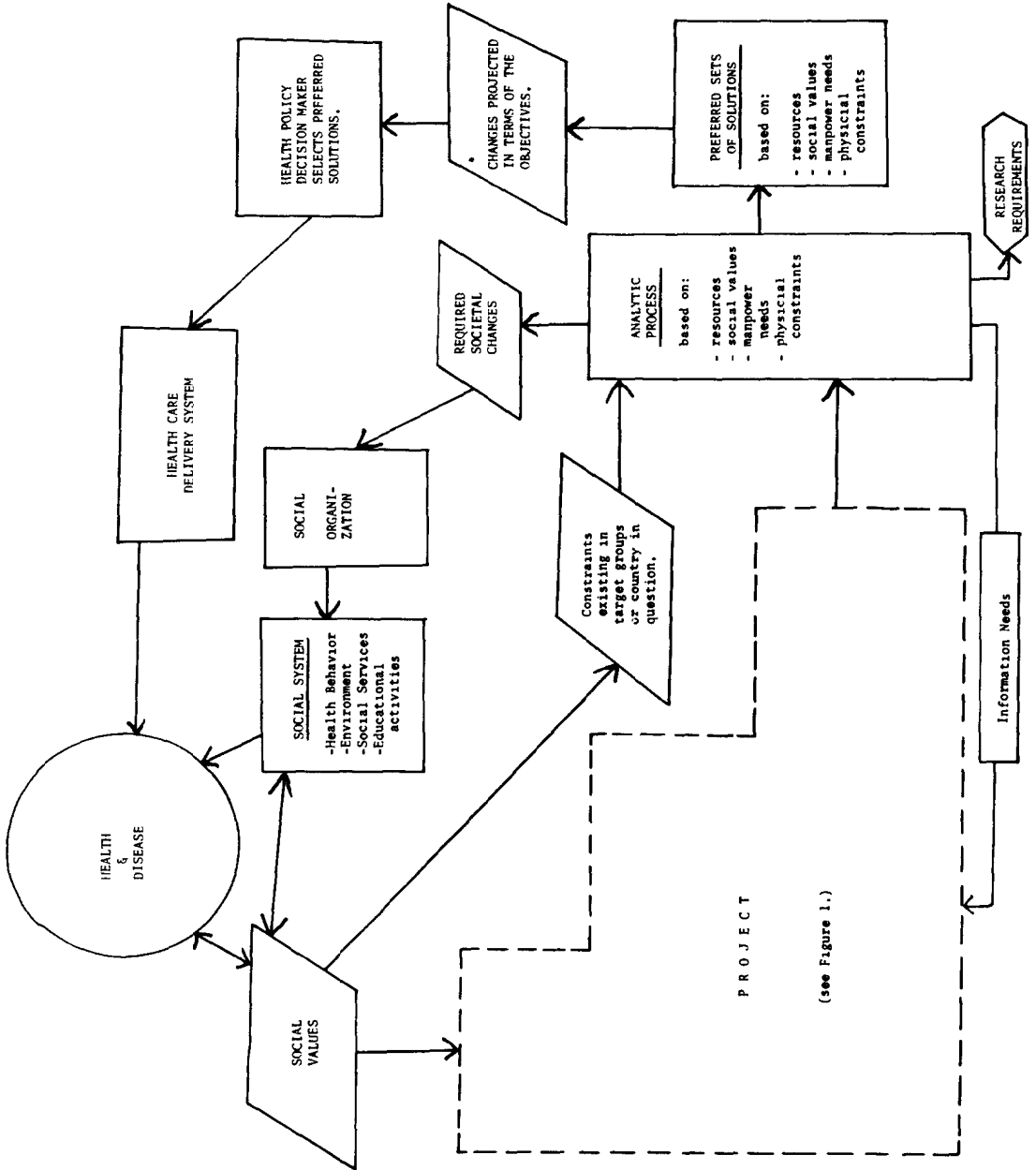


Fig. 2. A systems approach to health insurance policies: Delineation of project boundaries within total system of health and disease.

U.S. Congress. House. Committee on Ways and Means. National Health Insurance Resource Book. Washington, D.C.: U.S. GPO, 1974 Part III, Chapt. 5: United Kingdom - Appendix II p. 397					1.8.3.2 Ombudsmen
kind of information contained in this reference					
1) Type of ref.:	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
	theoretical	applied	legislative	regulatory	
2) Country & system:	<u> Britain -- National Health Service </u>				
3) Resources:	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
	Manpower	Investment Cost	Operating Cost	Facility	
4) Results:	Quantitative Outcomes	Postulated Outcomes	Positive Results	Negative Results	
Health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5) Financing mechanism:	<u> NHS financing - general taxation & contributions </u>				
6) Additional information:					

Fig. 3. Example of coding card for summarizing references.

readily available from publications normally included in multi-coordinate indexed systems and is more likely to be found in internal documentation of health insurance systems both in the U.S. and abroad. These normally unpublished sources would be a significant source of much of the information for the proposed health insurance information base.

The exact costs of establishing and maintaining the information base can only be approached after the information frame has been evolved to a workable degree. The test for the workability of the frame lies in the use of the frame for exploring qualitatively interrelationships among issues, program options, problems and solutions. It is postulated that the capacity to explore such qualitative relationships within this information frame is adequate justification for further developing and using the proposed systems approach to health insurance.

Methods

(1) *Initial exploration.* The activity reported now has been pursued by the authors, assisted through occasional review by colleagues at the School of Public Health in Ann Arbor. An information frame was internally generated using only the three categories—issues, problems and solutions. The listings for these three categories were subsequently partly confirmed as well as expanded through literature search. Further development of the concept led to the recognition of the need to identify program options for the selected issues and to clearly specify criteria for identification of problems and solutions. This recognition led to the outline of the information frame as shown in Fig. 1, using as the basis for the taxonomy the hypothesized operational sequence—issues, program options, problems and solutions. Figure 4 shows the format for listing the program

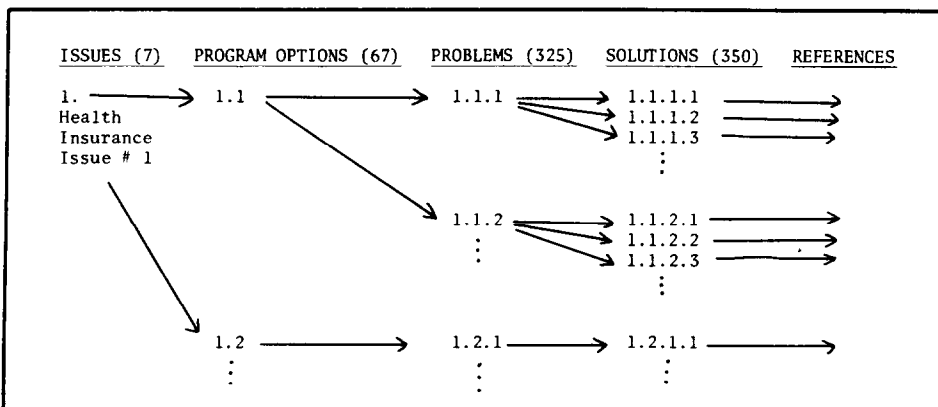


Fig. 4. Format for listing of health insurance taxonomy.

options, problems and solutions based on the proposed taxonomy. The sixty-seven program options so far generated for the postulated issues are provided in Table 2. An example of the worksheets using this format for one problem, under one program option, under Issue 1, *Promote Access to Medical Care*, is shown as Fig. 5. This example lists the codes for problem class (reference Fig. 1) and for the criteria used for identification of the individual problem and solution. It is anticipated that this identification will provide one of the tools to explore qualitative interrelationships between solutions and problems and issues. Also an attempt is being made to identify for each solution one or more of the seven levels assumed for most health care systems at which the solution is directed. Known applications of solutions are linked to these levels of care by country of application with references.

The relevancy of generated program options, problems and solutions should be tested by submitting the preliminary frame, once completed, to a larger group of health insurance experts here and abroad. It is likely that this testing process will generate a considerable number of additional program options, problems and solutions easily incorporated in the established data file. The design for a computerized information base using the health insurance information frame as described has been done with the anticipation of easy expansion resulting from such tests[33].

(2) *Access to an interrelated taxonomy.* To establish data manipulation capability the list of health insurance issues, program options, problems and solutions is used as a starting point. From this list a single file of raw data consisting of two types of records, identification records and reference records, has been constructed.

The identification portion of the files contains one set of data (one record) for each program option, problem and potential solution. The reference records would be made up of one additional data record for each country where, for a given program option or solution, an application reference or a literature reference(s) to a theoretical application was found. The exact contents of these two kinds of records is flexible, however, the basic format is as shown in Fig. 6. The machine readable data base has been described in more detail elsewhere[33].

Identification of individual problems and solutions is done by use of a computer generated word index for each relevant term in the program option, problem, and solution description. This facilitates initial location of specific elements of the taxonomy without requiring prior knowledge of the structure.

It is probable that explicit definitions of levels of care and areas of impact, both from the provider and client perspective, can be used with concepts from set theory to provide a framework to structure analyses of the interdependence problem. The procedure to be followed involves identifying additional variables for each solution based on their expected outcomes with regard to other issues of the health insurance system. The inter-linkage would be identified at two levels—the first level will be the impact, beneficial or otherwise, of each solution on each of the other major issues, the second level will be the identification of solutions which may be incompatible with other specific solutions for this same objective. Each solution can effect the other issues positively, negatively, or not at all, and this gives enough classification to define an additional categorical variable for each solution.

For identification of program options, problems and solutions occurring more than once, all such solutions will be listed with an additional four level value made up of variables 1–4. For the first or primary occurrence of a solution this would be just a duplication of the first four variables: but where this solution was one repeated from a previous location, it would contain the issue, program option, problem and solution number of that solution (see Fig. 6).

Once such a data frame has been assembled, a variety of questions and comparisons can be made. A major element of flexibility arises from being able to cross reference any of the variables in the data frame. This can be done very easily without yet having all the variables defined, by using only those of most immediate concern (issue number, problem number, solution number, country and level of care) on an interactive computer system. Cross referencing would be accomplished by using packaged software (already available without immediate production of new or special computer programs), to perform sorts and/or counts of the various elements. For example, if identification of solutions applied for various problems was desired, the computer can perform a sort operation on the solution identification field which would group all occurrences of each solution, and show the different problems to which it has been applied. Similarly, counts or cross references by country, or any of the other variables, could also be obtained rapidly and inexpensively by a simple computer command. However, as additional descriptive variables (as well as other constraints) are examined special programs can then be written.

Interrelationships among the program options, problems and solutions will be explored through "signed descriptors" for the individual problem or solution qualitatively indicative of the direction of the effect on the criteria other than the one used for identifying a problem or solution as well as on the issues other than that in which the problem or solution occurs. "Signed descriptor" is used to refer to additional variables associated with each program option and solution to indicate the effect of this activity on the other issues and the other criteria. The effect is intended to be shown by giving a plus or minus *sign* or a zero to indicate the probable direction of the effect relative to that issue (positive, negative, or neutral), as for example in Table 3. The concept of a signed descriptor as an aid in the grouping of social science literature has also been observed elsewhere though not exactly in the present context[32]. For example, a program option which promoted access (Issue 1), but increased the indirect financial burden (Issue 2) and also failed to contain overall costs (Issue 5) might have three signed descriptors of $+--$ for these three issues.

Another means for identifying qualitative relationships is the tabulation of repeated occurrence of options as problems or solutions and vice versa. Analysis of such multiple occurrences will give some indication of the range of possible effects of the different activities. As an example, co-insurance may constitute both a program option and a potential solution in attempts to contain overall costs, but will emerge as a problem violating equity when considering the issue of promoting access to medical care. Thus it will be more easily recognized that selection of solutions to, for instance, co-insurance as a problem, mitigates negative effects on the accepted goal of equity. The power of any given solution may in this

<u>Program Option</u>	<u>Problem Class</u>	<u>Problem Criteria</u>	<u>Potential Solutions</u>	<u>System Level</u>	<u>Applications</u>
1.8 Compulsory health insurance for those with an income below a defined level. (also in: 4.7)	1.8.3 Additional charges over agreed fees in fee-for-service systems.	2	1.8.3.1 Supplemental insurance for increased charges (not including additional benefits). (also in: 1.9.2.1)	02 03 04	Belgium France Italy
			1.8.3.2 Ombudsmen (also in: 1.9.4.1.)	06	Sweden United Kingdom
			1.8.3.3 Press publicity on complaints of overcharging.		
			1.8.3.4 Providers association watch.	07	Sweden
			1.8.3.5 Capitation fee for G.P.'s (also in: 1.7.4.1)	02	Holland Italy United Kingdom

- Codes Used:
- System Level
 - 01 Self-care
 - 02 Primary
 - 03 Secondary
 - 04 Tertiary
 - 05 Preventive Medical Care
 - 06 Social Services
 - 07 Administrative
- Problem Class
 - 1 = negative result
 - 2 = program constraint
 - 3 = deficiency
- Problem Criteria
 - 1 = illness cost-risk sharing
 - 2 = equity
 - 3 = efficiency

Fig. 5. Issue 1: Promote access to medical care.

Table 2.

1. Promote access to medical care.	2. Reduce indirect financial burden of illness on consumer.	3. Reduce direct financial burden of illness on consumer.
<p style="text-align: center;"><u>Program Options</u></p> <p>1.1 Employment/occupation/ group health insurance. (also in: 3.5, 5.10)</p> <p>1.2 Insurance for persons over 65.</p> <p>1.3 Insurance for children under 6 years.</p> <p>1.4 Government sponsored services for pregnancy.</p> <p>1.5 Health insurance for entire population -- National Health Insurance. (also in: 3.8, 5.15)</p> <p>1.6 Catastrophic health insurance administered by private insurance companies.</p> <p>1.7 Fee-for-service for all care levels. (also in: 4.1, 5.14, 6.2)</p> <p>1.8 Compulsory health insurance for those w/income below a defined level. (also in: 4.7)</p> <p>1.9 Private (individual) h.i. (also in: 3.1, 6.8)</p> <p>1.10 Care for medically indigent (medicaid).</p> <p>1.11 National Health Service. (also in: 3.9, 5.11, 6.5)</p> <p>1.12 Health care services available at schools.</p> <p>1.13 Health care services avail- able at work sites.</p>	<p style="text-align: center;"><u>Program Options</u></p> <p>2.1 Social security package including sickness insur- ance, maternity benefits.</p> <p>2.2 Voluntary sickness insur- ance for lost income.</p> <p>2.3 Voluntary insurance for home care.</p> <p>2.4 Voluntary agency pro- viding home care nursing and home aids.</p> <p>2.5 Local or central govern- ment funded home care services.</p> <p>2.6 Volunteer home care assistance.</p> <p>2.7 Consumer awareness programs.</p>	<p style="text-align: center;"><u>Program Options</u></p> <p>3.1 Private health insurance. (also in: 1.9)</p> <p>3.2 Catastrophic insurance. (also in: 5.7)</p> <p>3.3 Employment/occupation/ group health insurance. (also in: 1.1, 5.10)</p> <p>3.4 Prepaid group practice; HMO. (also in: 5.8)</p> <p>3.5 P.S.R.O. (also in: 5.9, 6.1)</p> <p>3.6 Medicredit health plan (tax credits to families).</p> <p>3.7 Local government pro- vided ambulance and transport service.</p> <p>3.8 Health insurance for entire population -- Nat'l Health Insurance. (also in: 1.5, 5.15)</p> <p>3.9 National health service. (also in: 5.11, 6.5)</p> <p>3.10 Use of co-insurance (% of cost). (also in: 5.1)</p>

<p>4. Promote efficient remuneration of providers.</p>	<p>5. Containment of overall cost of medical care.</p>	<p>6. Secure appropriate medical care.</p>	<p>7. Promote preventive health care.</p>
<p><u>Program Options</u></p> <p>4.1 Fee-for-service for all care levels. (also in: 1.7, 6.2)</p> <p>4.2 Capitation fee for primary care providers (including pharmacists). (also in: 5.3, 7.5)</p> <p>4.3 Capitation fee for primary care providers (including pharmacists) with salaried specialists. (also in: 5.4, 7.6)</p> <p>4.4 Capitation fee for primary care providers (including pharmacists) with fee-for-service specialists. (also in: 5.5)</p> <p>4.5 All care level providers salaried. (also in: 5.6, 7.7)</p> <p>4.6 Episode of illness payment for specialist care (within health insurance schemes). (also in: 5.12, 6.6)</p> <p>4.7 Compulsory health insurance for those with income below a defined level. (also in: 1.8)</p>	<p><u>Program Options</u></p> <p>5.1 Use of co-insurance (% of cost). (also in: 3.10)</p> <p>5.2 Rate and fee regulation by state or federal government.</p> <p>5.3 Capitation fee for primary care providers (including pharmacists). (also in: 4.2, 7.5)</p> <p>5.4 Capitation fee for primary care providers (including pharmacists) with salaried specialists</p> <p>5.5 Capitation fee for primary care providers (including pharmacists) with fee-for-service specialists.</p> <p>5.6 All care level providers salaried.</p> <p>5.7 Catastrophic insurance. (also in: 3.2)</p> <p>5.8 Prepaid group practice; HMO. (also in: 3.4)</p> <p>5.9 P.S.R.O. (also in: 3.5, 6.1)</p> <p>5.10 Employment/occupation/group health insurance. (also in: 1.1, 3.3)</p> <p>5.11 National Health Service. (also in: 3.9, 6.5)</p> <p>5.12 Episode of illness payment for specialist care (within health insurance schemes). (also in: 4.6, 5.12)</p> <p>5.13 Insurance for persons over 65.</p> <p>5.14 Fee-for-service for all care levels. (also in 1.7, 4.1, 6.2)</p> <p>5.15 Health insurance for the entire population-- National Health Insurance. (also in: 1.5, 3.8)</p>	<p><u>Program Options</u></p> <p>6.1 P.S.R.O. (also in: 3.5, 5.9)</p> <p>6.2 Fee-for-service for all care levels. (also in: 1.7, 4.1, 5.14)</p> <p>6.3 Health insurance regulatory control of reimbursement for appropriate medical care.</p> <p>6.4 Health insurance for entire population; National Health Insurance. (also in: 1.5, 3.8, 5.15)</p> <p>6.5 National health service. (also in: 1.11, 5.11, 3.9)</p> <p>6.6 Episode of illness payment for specialist care (within health insurance schemes) (also in: 4.6, 5.12)</p>	<p><u>Program Options</u></p> <p>7.1 Health education programs.</p> <p>7.2 No charge MCH programs (including immunizations).</p> <p>7.3 Social programs for environment: food, housing.</p> <p>7.4 Environmental health programs: air, water, transport safety.</p> <p>7.5 Capitation fee for primary care providers (including pharmacists) (also in: 4.2, 5.3)</p> <p>7.6 Capitation fee for primary care providers (including pharmacists) with salaried specialists. (also in: 4.3, 5.4)</p> <p>7.7 All care level providers salaried. (also in: 4.5, 5.6)</p> <p>7.8 Occupational safety regulation programs.</p> <p>7.9 Disease control programs.</p>

Program, Problem, or Solution Identification:

- one record for each										
V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	
Issue Code Number	Program Option Code Number	Problem Code Number	Solution Code Number	Program, Problem, or Solution I.D.	Text description of solution	Potential system impacts	System Level 1-2-3-4-5-6	# of application refs.	# of theoretical references.	

Program, Problem, or Solution References:

- one record for each published literature reference (or other references) found											
V1	V2	V3	V4	V5	V6	V7	V8	Kind of information:			
								V9	V10	V11	
Issue Code Number	Program Option Code Number	Problem Code Number	Solution Code Number	Program, Problem, or Solution I.D.	Ref. Seq. Code Number	Country	Systems Impacts	Code for theo. or applied refs.	Bibliographic identifier (numeric code*)	Code for type of information contained therein	

*to be matched with similar numerically coded list of bibliographic citations.

Fig. 6. Record contents for implementation of a health insurance system data base.

Table 3. Signed descriptors for solutions to Problem 1.1.1. (no coverage when unemployed) of program option 1.1. (employment/occupation/group health insurance) of Issue I (promote access to medical care)

	Issue I - access	Issue II - indirect financial burden	Issue III - direct financial burden	Issue IV - remuneration	Issue V - cost containment	Issue VI - appropriateness	Issue VII - prevention	Problem Criterion 1 - illness cost risk sharing	Problem Criterion 2 - equity	Problem Criterion 3 - efficiency
1.1.1.1 Unemployment insurance (social security) includes payment of health insurance.	+	0	+	+	+	0	-	+	+	+
1.1.1.2 Unemployed allowed to pay government health insurance (normally considerably lower than voluntary health insurance rates) from own resources.	+	0	+	+	+	0	-	+	-	+
1.1.1.3 Unemployed allowed to choose reduced coverage (catastrophic illness only) at reduced premium rates out of pocket.	+	0	+	+	+	-	+	+	-	+
1.1.1.4 Provider levels provide free care to unemployed with commensurate increase of payment to providers (primary, secondary, tertiary) by either city, state, or federal contributions.	+	0	+	+	-	-	-	-	+	-
1.1.1.5 Governmental institutions (federal, state, city) provide free care to unemployed.	+	0	+	-	+	+	-	-	+	+

way be measured by the frequency with which it addresses different problems.

Quantitative interrelationships are not intended to be produced within the policy information frame itself, but are expected to become available from literature references.

5. PRELIMINARY RESULTS

For the seven selected issues, 78 program options have so far been listed. For these 78 options 325 problems have been identified. Over 350 solutions generated earlier for the more than 75 problems at that time listed have been rearranged for the newly identified problems. So far applications in 8 European health insurance systems have been identified for 85 solutions. To test the feasibility of creating a computerized health insurance information base, the available issues, program options, problems and solutions have been transferred to computer storage according to the design provided in Fig. 6.

The first preparation of the information frame cannot at all be considered complete. Completion will require intensive collaboration from future users, particularly in government, and health insurance specialists, both in this country as well as in other countries with experience in health insurance, so as to complement and adapt the frame accordingly. In addition, the literature search, once started, is expected to provide additions to elements of the information frame, without need to change the design of the frame itself.

6. DISCUSSION

The preliminary character of this report relates to the recognition that the information frame, once worked out for all four categories, needs further testing by health insurance specialists and policy analysts for confirmation or adaptation. A structured survey of policy information-needs should form a part of such a testing phase for the project. Contributions must also be obtained from existing health insurance systems outside the U.S.A.

In addition, it is obvious that the authors by themselves can never expect to establish an adequate information frame. A search for additions and corrections and a need-survey would eventually complete a workable information frame for the purposes identified earlier. Apart from adaptation, addition to the frame will be necessary, particularly on the basis of information available through reports, including internal reports from health insurance agencies, both government and private. The information frame as designed allows for expansion within the established four categories, and also for possible expansion of the categories if considered necessary. The establishment of the information base would be a much larger endeavor, requiring considerable and long-term support or might be undertaken in another environment altogether.

7. CONCLUSION

So far the development of the information frame has been conducted in a university setting with assistance from experienced health policy analysts. But even with a relatively limited exposure, the potential usefulness of the approach has been demonstrated. The increasing importance of comparative analysis of health insurance alternatives, plus the increasing interest in international comparisons of experience, and the time saving such a resource could provide policy analysts are the justifications for the present efforts.

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