

# UC Irvine

## Working Paper Series

### Title

A Search for Performance Evaluation in Public Services: Education, Housing and Health

### Permalink

<https://escholarship.org/uc/item/2xq628bk>

### Authors

Bailey, Dathron  
Spendolini, Michael J.

### Publication Date

1977-12-01

UCI-ITS-WP-77-11

**A Search for Performance Evaluation in  
Public Services: Education, Housing and Health**

UCI-ITS-WP-77-11

Dathron Bailey  
Michael J. Spendolini

Institute of Transportation Studies  
University of California, Irvine

December 1977

Institute of Transportation Studies  
University of California, Irvine  
Irvine, CA 92697-3600, U.S.A.  
<http://www.its.uci.edu>

This paper is based on research conducted by the Institute of Transportation Studies, University of California, Irvine, under the sponsorship of the University Research and Training Program, Urban Mass Transportation Administration, U.S. Department of Transportation (contract #CA-11-0014), "Development of Performance Indicators for Transit".

## CONTENTS

Introduction . . . . .	1
Education . . . . .	2
Housing . . . . .	10
Medical and Health Services . . . . .	19
Summary: Implications for Transit . . . . .	29
Conclusion . . . . .	31
References . . . . .	33

As public funds become ever more scarce and demands on them ever greater, public scrutiny of their use increases. Means are sought to determine exactly how such funds are being used, and to determine where and how they could be better allocated. The quantitative evaluation of performance provides some measure of rational justification for political and policy decisions.

Public transit is today in this position of stabilized or decreasing funds and increasing demands, yet there exist no readily applicable means of evaluating transit performance. Transit must adapt the evaluation techniques and learn from the experience of other public fields.

Performance evaluation has long been an issue in the fields of public education, housing, and health. Many volumes of research are available discussing evaluation theory and experience with techniques ranging from performance contracts and peer ratings to subjective ratings of "satisfaction".

Performance evaluations are also conducted in many other public service fields, e.g. fire and police services. Yet, the fields of education, housing, and health are similar to public transit in that they: (1) must be provided on a continuous basis; (2) cannot be normally justified on a public safety basis, as can police and fire services; and (3) are not utilized by the entire population on a regular basis.

This paper will investigate each of the fields (public education, housing, and health) in turn, discussing the predominant evaluation techniques used or suggested for that field and the problems inhibiting evaluation. For each area, appropriate parallels will be drawn to the evaluation of public transit.

## EDUCATION

Concern for competency among school teachers and accountability for performance and public expenditures has manifested a definite need for performance measures in education. This research has examined the areas of goal-specification and evaluation in education and found that there are very few agreed-upon objectives and goals. This, in turn, has retarded efforts to formulate realistic and objective measures of performance.

### General Issues

The shortage of goals and objectives in education may, in some degree, be attributed to the focus of responsibility for education performance and finances. School board members and upper management personnel in all levels of education are primarily responsible for the performance of their respective units and for the development of performance or accountability measures. For these same individuals, however, there is a negative incentive to collect performance measures which could primarily be used to accentuate certain inefficiencies within the system, thereby leading to reduced funding levels in the future. Thus, in many inner city school districts, a minimal amount of testing and data collection is done for the purpose of assessing teacher and pupil performance.

With such organizational problems surrounding the determination of education goals, it is clear that there are fundamental impediments to objective evaluations of performance in school systems. In fact, some researchers contend that the basic flaw in education is that there is no separate group which assumes the evaluating role:

"The real crux of the education problem lies in the fact that the same people who are responsible for planning policy or effecting plans also assume the evaluation role."<sup>1</sup>

One of the most difficult managerial problems in public education is the defining of objectives. In its most simplified form this is a debate over "teaching fundamentals vs. social adjustment". However, it is more complex than that, involving such ideas as that schools should help to prepare people for the world of work, teach them to make the best use of their leisure time, to make intelligent use of resources, and to deal constructively with psychological tensions.<sup>2</sup> While few people would disagree with such broad goals as these, it is the translation of them into evaluation measures that is so exceedingly difficult and controversial.

Another hindrance to evaluation is that school administrators have long accepted the belief that the socialization outcomes of education are not quantifiable. For that reason, heavy priorities have been placed on the use of numerical achievement test scores.<sup>3</sup> Researchers such as Barro, however, have suggested that socialization and self-concept measures of student development may be quantified and isolated by such indicators as rates of absenteeism, drop-out

---

<sup>1</sup> J. Frymier, Fostering Educational Change (Columbus, Ohio: Merrill Publishing, 1968), p. 124.

<sup>2</sup> S.J. Knezevich, Administration for Public Education (New York: Harper and Row, 1969), p. 324.

<sup>3</sup> Myron Leiberman, "Accountability For Whom? For What?," Phi Delta Kappan, 1970, pp. 193-195.

rate, incidence of vandalism, and delinquency.<sup>4</sup> The relative importance of these effectiveness indicators to student development has yet to be ascertained.

### Evaluation Techniques

Examination of literature dealing with education finds two major types of evaluation recommended: a regression technique allowing analysis of particular factor impacts and an input to output technique. In addition, two fund allocation or subsidy techniques relate to the issue of evaluating education.

The degree of interaction among variables of output, input, system factors, and exogenous factors in maximizing output could be determined through a scheme of "School Effectiveness Indicators" suggested by Dyer. Dyer, however, did not attempt to formulate such a list of indicators. Dyer and Barro did present an approach for developing accountability measures in public schools. Their methodologies involved the use of multiple regression analyses relating pupil performance to an array of pupil, teacher, and school characteristics. A "value added" concept of output is used to estimate the individual contributions of teachers in this system.<sup>5</sup>

The underlying issue is not whether to have accountability, but what kind of accountability will prevail. Leiberman suggests two

---

<sup>4</sup> Stephen M. Barro, "An Approach to Developing Accountability Measures For Public Schools," Phi Delta Kappan, December, 1970, pp. 196-205.

<sup>5</sup> Henry S. Dyer, "Toward Objective Criteria of Professional Accountability in Schools of New York City," Phi Delta Kappan, 1970, pp. 206-211.

approaches for determining the form of accountability system most appropriate for a particular educational system. The first approach relates input factors to educational outputs. For example, there might be an effort to document increments in learning when class size is reduced, teachers with advanced training are employed, or when different teaching materials are used.<sup>6</sup>

The second approach that Leiberman suggests for achieving accountability for results in educational programs is the voucher system, a free-market approach in which each child's parents are given vouchers exchangeable for a certain number of dollars in tuition payments and are free to choose schools that they prefer. Presumably, this free choice would force schools to produce or fail. While the experiments are still too new to show definite results, it is clear that the plan faces several basic problems, not the least of which is the fact that it allows those who can afford it to supplement the voucher payments and thus procure better schooling for their children.<sup>7</sup>

There is somewhat of a consensus among educational evaluators that output measures are the appropriate criteria for evaluation of teacher performance, but that existing output measures are inadequate.<sup>8</sup> Present output measures such as standardized proficiency tests are too

---

<sup>6</sup> Leiberman, op. cit., p. 194.

<sup>7</sup> R. Buchele, The Management of Business and Public Organizations (New York: McGraw Hill, 1977), pp. 76-77.

<sup>8</sup> See, for instance, E.M. Gramlich and P.P. Koshel, Educational Performance Contracting (Washington, D.C.: The Brookings Institute, 1975). Also Dyer, op. cit.; Barro, op. cit.; and Leiberman, op. cit.



often affected by factors outside the teacher's control or are invalid because the test material is taught and other, equally important, material ignored.

There have been a number of radical attempts to measure results achieved and to link them to funds expended. One approach that has been tried in a number of school districts is the use of "performance contracting", whereby a school system subcontracts the teaching of a whole school, or a number of grades, or certain subjects to an outside agency. Results are defined in terms of students' scores at the end of a semester in subject-matter tests and the contractor guarantees certain results. The agreement, for example, might stipulate reimbursement to the contractor on a per-student basis with no reimbursement for those students who do not achieve the specified test scores or, alternately, it might require varied amounts of compensation to the contractor depending on the students' test scores. In general, results from performance contracting have been disappointing.<sup>9</sup> The main problem is that the contractors taught specifically to the test: they sacrificed a well-rounded curriculum to a highly specific cramming of facts for tests.<sup>10</sup>

The successful performance contracting programs involved small groups of students for single subjects together with adequate planning

---

<sup>9</sup> "Evaluation of Performance Contracting," Business Week, March 25, 1972, pp. 84-85.

<sup>10</sup> J.D.C. Welsh, "Perspectives On Performance Contracting," Educational Researcher, October, 1970, p. 467.

time and careful teacher selection and training. These cases suggest that evaluation measures and subsidy techniques must be closely tied to the desired outcomes, and that evaluation is no substitute for proper program management.

Educational performance contract experiments have not produced reliable or valid measures of performance that could be integrated into a system-wide allocation formula. The chosen criteria must be measurable and efficiency and effectiveness must be jointly considered in Competency Based Teacher Education (CBTE) programs and in other incentive oriented approaches.

#### Objectives-Oriented Performance Programs

There have been numerous attempts to set objectives in education via experiments in systems management, e.g., the PEP experimental program in San Mateo, California; Planning Programming Budgeting Systems (PPBS); and Management-by-Objectives programs.<sup>11</sup> These experimental programs have run head-on into the objectives-setting problems previously described. They have also run into problems of moving from traditional budgeting categories (such as instruction, administration, operations, etc.) into PPBS mission categories (such as learning intellectual skills, developing the individual, etc.).<sup>12</sup> These programs have also run into difficulties in the areas of training, insufficient

---

<sup>11</sup> H.P. Hatry, "PPBS: A Status Report with Operational Suggestions," Educational Technology, April, 1972, pp. 19-22.

<sup>12</sup> J.D. Rossi, Program Budgeting for Improved School District Planning. Report RM-6616-RC, The Rand Corporation, Santa Monica, California, 1961.

staff assistance, resistance to innovation, etc.<sup>13</sup> It is still too early to know what, if anything, the long-run impact of these experiments will be. However, one must be skeptical in view of the unpromising results achieved by PPBS in other fields.

#### College-level Education

Under financial strain, managers of public universities have been forced to reconsider what basic purposes the university should serve. One aspect of this question might include, for instance, the issue of open vs. restricted admissions. Managers of private universities are confronted by a different question brought on by financial austerity: should they--and can they--maintain their standards in the face of unused capacity and reduced revenue?

Administrators of both private and public institutions are examining the tremendous profusion of activities that have evolved at every major institution and are asking the question, "What purposes should be served with the limited resources, and which are less worthy?" Due to increasing economic constraints, e.g. state funding cutbacks and/or decline of private contributions, goals and objectives are frequently ranked according to their relative importance. Thus, various campus activities which have traditionally received adequate funding have either been diminished or eliminated due to funding restrictions. Activities which can be "legitimized" by fulfilling one or more of the University's goals or objectives receive higher priority on the

---

<sup>13</sup> Hatry, op. cit., p. 20.

funding list than do those activities which serve very limited or specialized student sub-groups or whose purpose is somewhat vague and removed from the general stated objectives of the University.

#### Implications for Transit

Public transit, like public education, faces the problem of the absence of agreed-upon goals and objectives. Similarly, transit shares the condition of having a multiplicity of goals which may be identified but only a certain number of which may be quantified.

Public transit managers may also share the lack of incentive to undertake the task of developing evaluation procedures. This may be attributed to the fact that the specification of goals, the development of reporting and auditing systems, and the promotion of planning agency involvement in evaluation may result in the exposure of ineffective and/or inefficient procedures within transit.

The education example of productivity contracting suggests a possible lesson for transit, in that evaluation measures must not create problems through their misuse; i.e. the measures must not be counter-productive. Evaluation measures must be carefully designed to minimize unintended effects such as eliminating socially desirable, yet inefficient services. At the same time, proper administration of the system must not be ignored.

The shortage of reliable quantitative data and the absence of societal measures within education both hold significance for the transit application. Preliminary research indicates that both conditions are equally true in the transit industry, and that research is required, here too, into societal effects and their evaluation.

## PUBLIC HOUSING

Many problems exist in public housing programs today. The objectives of the industry are broad and vague, hence, the effectiveness of housing programs is extremely difficult to quantify and measure. Our investigation revealed that many interrelated factors inhibit the ability to realistically evaluate the performance of the Local Housing Authority (LHA), e.g. organizational structure, politics, subsistence level funding, and resident and community attitudes toward public housing programs.

Performance evaluation efforts in the field of housing are few and inadequate, primarily because of the adverse conditions for evaluation, the subjective approaches taken to evaluation, and the centralized organizational structure of most housing agencies.

Despite weak evaluations in the public housing field, a number of LHA's are taking it upon themselves to develop creative and innovative programs geared towards increasing performance in general or specific areas of the housing project.

### Institutional and Policy Problems

Performance measures in public housing are a function of upper management policy and organizational factors over which the LHA has little or no meaningful control. Often the property manager's performance is constrained by upper level management decisions, allo-

cation policy, and isolation from property level management.<sup>14</sup> Hence, no meaningful conclusions concerning efficiency or effectiveness in the public housing industry can be made until relevant and exogenous factors are thoroughly explored.

It has been alleged that the ultimate goal of public housing is "decent housing"--for which there are no acknowledged criteria.<sup>15</sup> In addition, our search for performance indicators in housing produced only a few objective measures of local managerial performance while the predominance of indicators were subjective measures depicting various levels of "satisfaction".<sup>16</sup>

The subsidized housing industry now finds itself in a situation in which rents collected are insufficient to meet operating expenses. The prevalence of vandalism and rent strikes are contributing factors to the money management difficulties at the property level. In this regard, negative or narrow-minded evaluation techniques have emerged, and employ such performance indicators as rents collected per month, number of vandalisms per month, and vacancies per week.<sup>17</sup> These indicators do not truly assess the performance of the local housing

---

<sup>14</sup> Several sources discuss this issue. See, for example, Leonard S. Rubinowitz, Low-Income Housing: Suburban Strategies (Cambridge, Mass.: Ballinger, 1974), p. 26; or Robert Schafer, "Public Housing Operating Cost, Management and Subsidies," in U.S. Congress, Senate, Committee on Banking, Housing, and Urban Affairs, Financial Condition of Local Housing Authorities, hearing, March 11 and 14, 1976, pp. 67-85.

<sup>15</sup> "Worse Than Slums: Public Housing is a Movement to the Welfare State," Barron's, July 27, 1970, p. 1.

<sup>16</sup> "Six Goals for a Program of Low-Income Housing and Twenty-five Recommendations," Journal of Housing, July 8, 1963, p. 71.

<sup>17</sup> U.S. General Accounting Office, Report to the Congress: Local Housing Authorities Can Improve Their Operations and Reduce Dependence on Operating Subsidies, RED-75-321, February 11, 1975, p. 1.

authority in that they do not measure effectiveness or the association between LHA performance, local management performance and exogenous factors such as building age, community attitudes, politics, and upper level management decisions.

Disregarding the considerations of institutional commitments, organizational structure, and resident attitudes, a rather superficial evaluation of performance at the property level reveals that the immediate problem among housing authorities is that they cannot meet operating expenses out of rental income without raising rents beyond the tenant's ability to pay. Yet, increases in the proportion of subsidy revenues to rents have traditionally led to further disincentives in housing management, and in general, poorer housing.<sup>18</sup> A similar situation also exists in the other public service fields studied.

What appears to be needed in public housing is an allocation scheme which will foster increased incentives in management and basic improvements in the quality of housing. But, even more fundamental, quantitative performance indicators must be developed which do not promote unintended consequences such as those caused by standardized test scores in educational performance contracting programs.

#### Evaluation Techniques

No significant advances have been made toward the development or use of performance indicators based on objective data in housing.

Sadacca and other Urban Institute researchers have developed a prototype "well managed project" called the Formula Approach. This

---

<sup>18</sup> See, for instance, Schafer, op. cit., p. 79; and "Worse Than Slums:..." op. cit., p. 1.

method is designed to provide added incentive for efficient operation in local housing management.<sup>19</sup> In practice, LHA's are required to gear their operations toward this prototype model. The subsidy allocation formula as developed by the Urban Institute provides for an operating subsidy equal to operating expenses plus the cost of utilities.<sup>20</sup>

A number of problems resulted from the Urban Institute's loose definition of "performance". Schafer notes five statistical faults that were made by the architects of the Formula Approach in their attempts to quantify and measure the performance of local housing management.<sup>21</sup> Three of these criticisms are:

(1) "A housing authority could become a 'high performer' simply by emphasizing a few of the measures, i.e., by hiring employees with low levels of expectations, defining its objectives narrowly, avoiding hostile neighborhoods, selecting 'well-behaved' tenants, and selecting tenants that have a high probability of upward mobility."

(2) The prototype performance measures resulted from subjective questions of satisfaction addressed to affected entities concerning LHA performance. Dr. Schafer alleged that "dissatisfaction with management" is not synonymous to "bad management". Dr. Schafer is explicitly calling for the development of objective measures of managerial

---

<sup>19</sup> Schafer, op. cit., p. 68.

<sup>20</sup> Ibid., p. 79.

<sup>21</sup> Robert Sadacca and Morton Isler, "Operating Subsidies for Public Housing: A Reply to a Critical Appraisal of the Formula Approach," in U.S. Congress, op. cit., pp. 25-45.



performance that may be scaled.

(3) Prototype expense levels leave out important and relevant variables that account for differences in operating cost among LHA's, e.g., project size, neighborhood conditions, dwelling unit density, tenant incomes, age of the building, etc.

The Urban Institute claimed that the above variables cited by Schafer either do not improve the accuracy of the formula or they will elicit undesirable policy and funding ramifications.<sup>22</sup>

These criticisms seem to indicate that there is little agreement on goals and that measures of performance are always controversial--especially subjective measures.

Considering the physical and maintenance aspects of housing projects, there are few reasons why more objective measures of performance cannot be formulated and used. Pydell reviewed many of the factors affecting maintenance and operating cost in public housing and concluded that older buildings cost more to operate per sq/ft than do newer buildings.<sup>23</sup>

Any allocation formula based on managerial performance scores, therefore, should take into consideration the age, location, structure of public housing projects. Pydell's study documented evidence which suggests that major cost elements to a great extent defy management control.<sup>24</sup>

---

<sup>22</sup> Ibid., p. 26.

<sup>23</sup> Peter C. Pydell, "Review of Factors Affecting Maintenance and Operating Cost of Public Housing," Papers and Proceedings of the Regional Science Association, November, 1970, p. 230.

<sup>24</sup> Ibid.

In general, the prototype approach offers no real incentive for increased managerial performance. To simply require that LHA's "shape-up" (i.e. to get tough with rent evaders and vandals) isn't a reasonable incentive plan. Furthermore, this prototype approach doesn't provide LHA's with a mechanism for selecting the most effective means of achieving its objectives.

Notte feels that the proposed prototype formula must be discarded and a more equitable formula developed in its place--one that would generate sufficient funds to provide necessary operating services. He expresses optimism and support for new operational developments in the area of housing management such as Tenant Management, Management-By-Objectives, and Automated Data Processing cost saving systems.<sup>25</sup> These same advances in public housing management suggest a need for the development of performance indicators that could be used to compare the performance of these new programs against conventional HUD programs.

Two types of programs seem to offer the greatest potential toward the development of performance measures in housing. One such approach is the Objective Oriented Management Approach and the other is the Performance Planning, Budgeting, and Accounting System (PPBS).

The Objective Oriented Management Approach involves managers and subordinates in all levels of the organization in the planning, implementation, and evaluation of goals (objectives) which they want

---

<sup>25</sup> Robert Notte, "Statement on Formula Approach," in U.S. Congress, op. cit., p. 135.

to achieve both as a team and as individuals. The system calls for both managers and subordinates to document the job objectives that would improve the effectiveness and efficiency of their departments and themselves.<sup>26</sup>

The benefit of this program is that decision-making and authority are decentralized. High-level management is free to establish policy, set objectives, evaluate programs, and perform other objectives-oriented tasks.

Under this system, the effectiveness of housing projects could be measured by the degree to which it meets its objectives and the degree to which those objectives adequately reflect the goals of the industry and the community.

PPBS is a system whereby the results of policy and management planning can be translated into detailed performance plans for specific programs and services, accompanied by supporting budgets. It provides performance budgeting by agency, stressing direct cost distribution to functional areas and emphasizing staff accountability.

This system permits easier and more effective programming of the activities of the agency and its associated monetary and personnel requirements. It also provides a practical means of implementing a Management-By-Objectives approach, ensuring that all performance is results-oriented and compatible with the organization's

---

<sup>26</sup> Department of Housing and Urban Development, Further Reorganization: Objective-Oriented Management. (NTIS PB 253 806) A Technical Memo: Number 3. November, 1976, p. 8.

goals.<sup>27</sup>

The very structure of PPBS--organized around specific programs--encourages the evaluation of those programs. Fundamental, too, to PPBS is the specification of objectives and goals in order to justify the various programs. Evaluation, therefore, within a PPBS-oriented system is relatively simple in comparison to other situations.

#### Implications for Transit

Schafer notes that a housing authority could become a "high performer" simply by emphasizing a few measures, defining its objectives narrowly, and selecting the most favorable (though not effective) conditions for evaluation. This is exactly the type of behavior that educational contractors exhibited when they concentrated on a selected group of students. This is also the type of behavior that must be avoided in public transit: if transit operators are allocated subsidies based on passengers per route-mile, then there should be sufficient safeguards to assure that increased efficiency doesn't come at the expense of greater decreases in effectiveness, e.g. the elimination of socially effective, yet low revenue producing, routes.<sup>28</sup>

Research in the area of public transit has suggested that a performance evaluation must account for exogenous factors and variable

---

<sup>28</sup> Thomas S. King, "A Rational Approach to Planning: Tri-Met's Criteria for Service," Transit Journal, Vol. 1, No. 1 (Feb. 1975), p. 26.

conditions that may affect operations.<sup>29</sup> In housing, however, the Urban Institute plays down the significance of these factors and contends that they do not give dimension to the property manager's performance. This dispute can only be resolved through further research that would give some indication as to the significance of exogenous factors in particular public services and situations.

The reliance upon subjective measures such as "satisfaction" produces an evaluation which is seldom reliable as an instrument of comparison between systems or periods. This fault is found in the housing field where quantifiable measures are infrequent. Evaluation research in transit attempts to prevent such problems of reliability by developing quantitative measures utilizing measurable input and output factors.<sup>30</sup>

---

<sup>29</sup> Schafer, op. cit., p. 472.

<sup>30</sup> G.J. Fielding and Roy E. Glauthier, Distribution and Allocation of Transit Subsidies in California (Irvine, California: University of California, Institute of Transportation Studies, September 1976).

## MEDICAL AND HEALTH SERVICES

There is no universal system available for rating the performance of health care facilities. However, several review activities have emerged in the health field primarily as the result of third party and consumer involvement in the subsidy allocation process. Insurance companies, Medicare and Medicaid agencies, and other state and federal agencies are becoming more and more involved in the evaluation process as medical and hospital costs soar. Many of these agencies are now demanding that medical personnel and facilities be held accountable for their performance and that fees charged reflect the necessary and appropriate costs of services rendered.

This report will focus on four areas of medical review: Professional Standards Review Organizations (PSROs), Utilization Review, Claims Review, and the Indicator Case Model.

### General

Review processes and evaluations in the medical field are commonly faulted for two major reasons: (1) they are largely subjective, based on comparison against "common" practice and peer ratings; and (2) they are almost without exception retrospective--seldom providing for intervention during the course of the cure. While having these shortcomings, medical reviews have produced incentives for more efficient and effective provision of health services. However, acceptable procedures and results have not materialized.<sup>31</sup>

---

<sup>31</sup> D.J. Verda and W.R. Platt, "The Tissue Committee Really Gets Results," Modern Hospital, Vol. 91 (1958), p. 74.

Although Medicare-type organizations have created both demand and opportunities for evaluation and review of medical practices, characteristics of the industry limit the applicability and effectiveness of such reviews. The private-office practice of medicine remains largely outside the sphere of effective professional and administrative surveillance and control. Health care is presently fragmented among many independent institutional providers, hence, there is no comprehensive organizational framework for continuous supervision and monitoring. As a result, those institutions most in need of supervision (nursing homes, for example) are least likely to be subject to it.<sup>32</sup>

#### Medical Review Boards

Professional Standards Review Organizations (PSRO): These organizations are charged with reviewing the appropriateness and quality of medical services within designated geographic areas. Through these PSROs, physicians have received the principle responsibility for evaluating the quality and cost elements of various health care facilities.

Specifically, PSROs are required to certify that medical care was "necessary" as determined through analysis of common medical techniques and treatment practices. This analysis results in a checklist review procedure of the diagnosis and management of cases.<sup>33</sup>

---

<sup>32</sup> U.S. Department of Health, Education, and Welfare, Social Security Administration, Conditions of Participation for Hospitals, 1966.

<sup>33</sup> Barbara S. Hulka, "Evaluation of Primary Health Care in a Total Community: The Indicator Case Model," in Evaluation in Health Services Delivery, proceedings of an Engineering Foundation Conference, South Berwick, Maine, August 19-24, 1973, p. 157.

PSROs are "unidimensional" in their approach to health care evaluation in that they consider only the cure aspects of service and disregard the care aspects of the delivery of health services.<sup>34</sup> Thus, because PSRO evaluations are based solely on statistics relating to cures, many experts in the public health field consider the PSRO approach as an invalid measure of health delivery.

Utilization Review: Utilization review is a comparison of the care given patients against criteria that reflect the need for admission, speed of diagnosis, treatment, and medical readiness for discharge.

In designing utilization review criteria, health care facilities must determine whether the primary emphasis of the system is on quality of service or utilization of facilities.<sup>35</sup> Shindell has argued that the emphasis in analysis should be on institutional performance rather than physician performance since most performance measures rely on factors heavily affected by common practice in the profession and/or the pervasive administrative and organizational features over which the physician has little control.<sup>36</sup>

Claims Review: Basically, claims review systems compare claims data against established norms of medically necessary and reasonable

---

<sup>34</sup> Ibid.

<sup>35</sup> Barry Decker and Paul Bonner, PSRO: Organization for Regional Peer Review (Cambridge, Mass.: Ballinger Publishing Company, 1973), p. 126.

<sup>36</sup> Ibid.



"treatment protocols". They take into account the differences in medical practices and judgements among physicians, thereby seeking to ascertain whether the services rendered and the fees charged are, in fact, appropriate and necessary.

The "Usual, Customary, and Reasonable" (UCR) approach to claims review is a particular review based on analysis of fees charged by comparable physicians for identical services. If the fees appearing on the claim is within the range of acceptable fees as indicated by analysis of peer group physicians, the claim is deemed "usual, customary, and reasonable," and will be paid without delay. If the fee is outside this range, it may be reduced or negotiated.

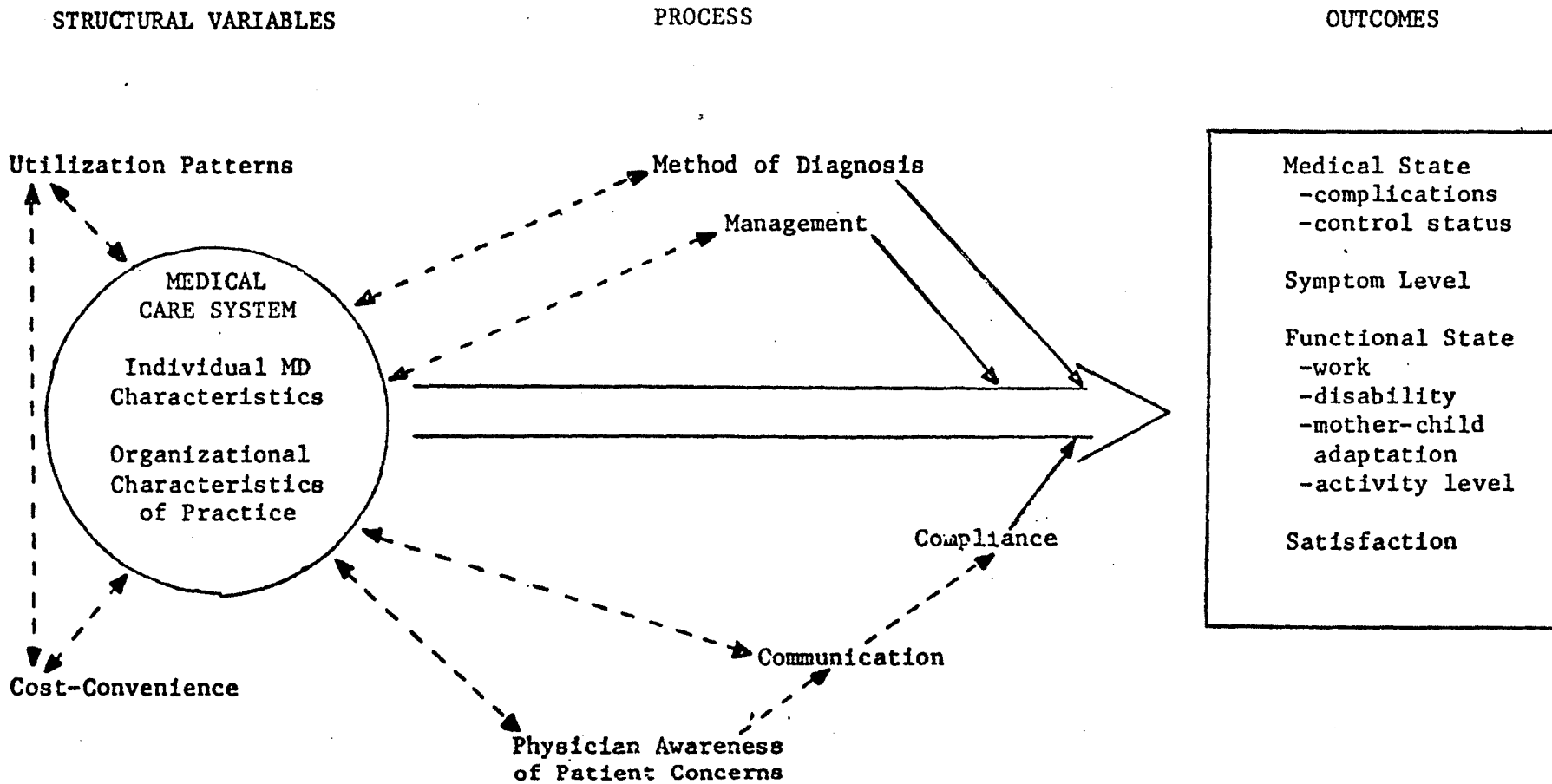
The key to cost control with UCR is that it does not permit a physician's fee to exceed certain guidelines. Often, however, a fee which falls outside the UCR guidelines is justifiable due to special circumstances or medical procedures. To arbitrarily refuse payment of the fee would be unfair to the physician. Alternately, to investigate every claim for special procedures would involve enormous administrative expense. To balance equitable reimbursement to the physician without incurring additional administrative expense remains a problem for UCR.

Indicator Case Model: The Indicator Case Model assumes that the proper techniques of diagnosis and management are known and that there is a direct relationship between the process of care and patient outcomes.<sup>37</sup> Figure 1 depicts this relationship.

---

<sup>37</sup> Hulka, op. cit., p. 148.

Figure 1: Interrelationships Among Variables  
In The Indicator Case Model



source: Hulka, op.cit.,p.170.

This model is restrictive in the sense that it focuses only on the diagnostic and therapeutic activities of the physician and does not attempt to account for system performance. In addition, the model relies heavily on peer ratings which often internalize accepted inefficiencies.

The Indicator Case Model has definite advantages over PSROs and other review techniques. Among these advantages are: (1) the model considers high quality care and cures as its objectives; (2) it utilizes both outcome and process measures; and (3) it provides data on the impact of the medical care system on the individual.<sup>38</sup>

In general, there are three criticisms of the Indicator Case Model: (1) it assumes a cause-effect relationship between treatment and cure which is not justified; (2) it evaluates through output measures which inconsistently and inadequately reflect what is being evaluated; and (3) it utilizes measurement techniques which are not reliable.

It is extremely difficult to show causal relationships between health care delivery and outcomes.<sup>39</sup> Research has been recommended which would utilize correlation techniques to examine relationships between treatment variables and outcomes. This procedure would assist in developing standards for evaluation of treatment techniques

---

<sup>38</sup> Hulka, op. cit., p. 157.

<sup>39</sup> Robert H. Brook, "Process and Outcome," in Evaluation in Health Services Delivery, op. cit., p. 110.

which could then be used in professional review processes.<sup>40</sup>

The precise determination of cause-effect relationships may not be necessary according to Greenburg. He suggests that the rough understanding of particular connections between cause and effect can help the health administrator in choosing and addressing existing problems.<sup>41</sup> For example, the cause-effect relationship existing between mortality and morbidity and against the amount of service provided can assist the administrator in allocating funds. See Figure 2 [Dosage-response Curve].

Relying upon measures of health outcomes, the Indicator Case Model requires measures of the effectiveness of health care. However, the selection of appropriate indicators of health status for these purposes has proven to be quite difficult. Whether the system should rely upon dichotomous measures such as mortality or stratified measures such as rate of incidence of particular diseases will dictate the specificity and character of indicator measures. In addition, there exists little standardization of criteria for measuring outcomes in the health field, this is especially true in the fields of rehabilitation and mental health.<sup>42</sup>

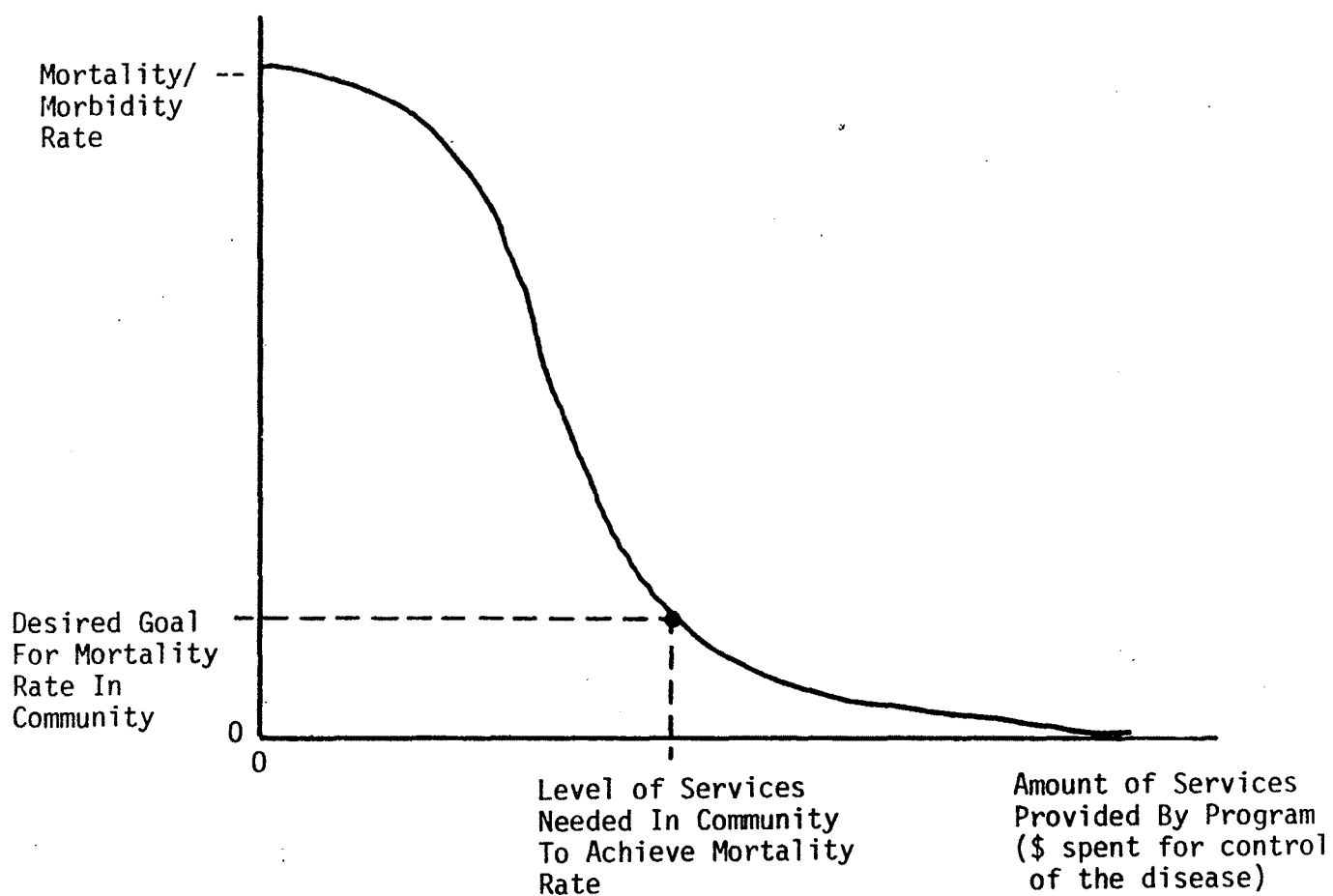
---

<sup>40</sup> P.B. Price, et al., "Measurement of Physician Performance," Journal of Medical Education, Vol. 39 (Feb. 1964), p. 203.

<sup>41</sup> B.G. Greenburg, "Evaluation of Social Programs," in Readings in Evaluation Research, ed.: Frances G. Caro and Russell Sage Foundation, New York, 1971.

<sup>42</sup> Paul M. Elwood, "Quantitative Measurement of Patient Care Quality: Part II--A System for Identifying Meaningful Factors," Hospitals, Vol. XL (Dec. 16, 1966), p. 60.

Figure 2: Dosage-Response Curve



source: Greenburg, B.G., "Evaluation of Social Programs,"  
Readings in Evaluation Research, 1971, p. 158.

This lack of standardization makes it difficult to compare various performance studies and to determine the reliability of the evaluation results.

Finally, the use of subjective measures--such as peer ratings and comparison with "accepted" practice reduces the reliability of the evaluation results. To some extent, indicated differences may be attributed to the measurement techniques rather than the treatment process and outcome.

#### Implications for Transit

In drawing parallels between the experiences of health evaluation and review and transit, there are several characteristics of the health field which must be recognized. First is that hospitals and doctors are largely overlapping and interchangeable; that is, they are both competitive and very similar. This tends to create conditions in which comparisons may be effectively made and evaluation of institutions is expected for the public good. Health and transit also differ significantly in the manner in which they are subsidized through public funds. Except for basic public institutions, medical and health facilities are subject to a high degree of consumer involvement in subsidy allocation. Under the Medicare and Medicaid programs, the patient chooses the facility at which he will be treated, and, in turn will receive reimbursement for its services to that patient. These reimbursements--from insurance companies and a myriad of governmental programs--are frequently passed through review processes: the claims reviews and other procedures discussed above. Subsidies to transit, however, are

primarily direct transfers from one governmental level and agency to another without the involvement of the consumer.

Another difference may be drawn between health and transit: that of image. The medical profession in general has an image of effectiveness and professionalism. This image is protected through evaluation and self-policing practices which are effective even though they are largely based on subjective measures. Transit, though, has at best a neutral image and has little incentive to undertake self-evaluation regardless of the potential inherent in its operations for objective measurement techniques.

There are similarities, though, between health and transit. One of these is found in the need to evaluate both care and cure, or efficiency and effectiveness in transit. The evaluation of either of these without its partner results in partial analyses. The controversy over selection of indicators for use in the Utilization Review Process points out the need for determination of objectives before construction or selection of measures. This has been mentioned previously as a problem in evaluating transit.

Finally, the Indicator Case Model carries a warning against the assumption of particular cause/effect relationships and the design of indicators on that assumption. Basing an indicator on an assumed cause/effect connection may bring about unintended effects, or, alternately, promote undesirable causes (i.e., processes).

## SUMMARY: IMPLICATIONS FOR TRANSIT

The preceding analyses of evaluation in the public service fields of education, housing, and health, point to several general implications for the evaluation of transit performance.

The first implication is that goals and objectives must be determined prior to the development of evaluation procedures and the selection of specific evaluation measures. As has been noted, goals and objectives have been conspicuously absent in public education, housing, and health. The failure to establish goals and objectives prior to selection of measures can lead to a case of putting "the cart before the horse"-- of stating goals and objectives which correspond to the measures already chosen. Through this process, it is likely that counter-productive measures will be selected and that measures will not have the desired effects.

The second point to be noted is that administrators in such fields as education, housing, health, and transit may not find it to their advantage to develop evaluation procedures or to cooperate with such efforts either because they know their operations are inefficient and ineffective or because they simply fear the scrutiny of evaluation. To some extent, government's use of evaluation has fostered this condition since evaluation has most often been applied in the past only where problems were known to exist or where change was already planned. Conditions for evaluation must be encouraged through both incentives and basic requirements for improvement. There presently exist few incentives in these systems to stimulate either increased levels of performance or improved performance evaluation techniques.



The completeness of evaluation is yet another point to be emphasized. Evaluation must encompass not only the ultimate effectiveness of the operation, but also the efficiency of the processes through which that end is attained. This point may be characterized by the evaluation of both care and cure in the health field. Evaluation of either one of these without the other produces an incomplete picture of the field. Transit is quite similar in that efficiency of the process and the effectiveness of the product must be concurrently evaluated.

Exogenous factors and their effect on the evaluation of performance also constitute an important warning from the fields analyzed. Both education and housing have significant exogenous or environmental factors which have been cited as escaping measurement and as preventing evaluation. While adequate answers to these concerns have not appeared, transit must remain alert to the developments within these fields as they affect transit's similar nature.

Finally, the value of objective versus subjective measures of performance must be considered and balanced. Where objective measures are not readily available, such as in the evaluation of physicians' performance, subjective measures should be used with full recognition of their biases. On the other hand, where quantitative measures are easily obtained, as in transit and to some extent education, they should be approached as only partial indicators of performance. Neither objective nor subjective measures are totally reliable--both should be used with sensitivity to their faults.

## CONCLUSION

This review of evaluative activities in public fields reveals problems parallel to those which are encountered in transit. The need for adequate control and evaluation procedures is a concern in each of these institutions. Management personnel should be involved in the establishment of organizational goals and the establishment of objectives at the program level with maximum consumer and community input.

Following the definition of broad organizational goals and the drafting of specific objectives, the design of evaluation techniques becomes crucial to the process of assessing effectiveness and efficiency of performance. Here, the emphasis in the literature clearly lies on the topic of standardization--i.e. the development of reasonable measures which are meaningful and useful for evaluation and development in both intra and inter-organizational contexts.

All too frequently, public administrators at the state and federal levels express dissatisfaction with the lack of meaningful standardized measures with which to evaluate service organizations. While operating in different geographic areas and serving different populations, public service organizations receive a great deal of funding from state and federal sources. The development of standardized measures of efficiency and effectiveness should assist those who are responsible for evaluation to make decisions supported by more objective and quantifiable criteria.

While standardized evaluation procedures and measures would benefit government levels, they--and the processes through which they are

developed--would be of most benefit to the service organizations themselves and to the consumer. The internal acceptance of responsibility for organizational performance should go beyond the large-scale concerns of government, and, in doing so, will benefit the individual served by the organization as well as the lowest level of the organization itself. Peter Drucker, a well-known management authority, emphasizes this internal evaluation process when he succinctly summarizes the administrators' tasks in the evaluation process:

1. They need to define "what is our business and what should it be...
2. They need to derive clear objectives and goals from their definition of function and mission.
3. They have to think through the priorities of concentration which enable them to select targets, to set standards of accomplishment and performance; that is, to define the minimum acceptable results and to make someone accountable for results.
4. They need to define measurements of performance - the customer satisfaction measurements....or the literacy figures....
5. They need to use these measurements to feed back on their efforts, that is, to build self-control from results into their system.
6. They need an organized audit of objectives and results, so as to identify those objectives that no longer serve a purpose or have proven unattainable."<sup>4 3</sup>

Evaluation is not an end in itself, but the means to an end of better performance from the organization and better service to the public.

---

<sup>4 3</sup> Peter Drucker. Management: Tasks, Responsibilities, Practices. Harper & Row, New York, 1974, pp. 158-159.

## REFERENCES

### EDUCATION

- Barro, Stephen M., "An Approach to Developing Accountability Measures for Public Schools," Phi Delta Kappan, December, 1970, pp. 196-205.
- Buchele, R. The Management of Business and Public Organizations. New York: McGraw Hill, 1977.
- Campbell, R. and Lorion, James E. Performance Contracting in School Systems. Columbus, Ohio: Charles E. Merrill Publishing Co., 1972.
- Campbell, R., "Strengthening State Departments of Education," Public Administration Review, July-August, 1970.
- Coleman, J.W., "Some Practicalities of Improving Academic Management," American Assembly of Collegiate Schools of Business, Jan., 1975, pp. 11-17.
- Dyer, Henry S., "Toward Objective Criteria of Professional Accountability in Schools of New York City," Phi Delta Kappan, 1970, pp. 206-211.
- Frymier, J. Fostering Educational Change. Columbus, Ohio: Merrill Publishing Co., 1968.
- Gittell, M. and Hollander, T.E. Six Urban School Districts: A Comparative Study of Institutional Response. New York: Praeger, Inc., 1968.
- Gramlich, Edward M. and Koshel, Patricia P. Educational Performance Contracting, Washington, D.C.: The Brookings Institute, 1975.
- Hatry, H.P., "PPBS: A Status Report with Operational Suggestions," Educational Technology, April, 1972, pp. 19-22.
- Houston, Robert W. Exploring Competency Based Education. Berkeley, Calif.: McCutchan Publishing Corp., 1974.
- Immegart, G.L. and Pileki, F.J. An Introduction to Systems for the Educational Administrator. Reading, Mass.: Addison-Wesley, 1973.
- Kast, F. and Rosenzweig, J.E. Organization and Management: A Systems Approach. New York: McGraw-Hill, 1974.
- Knezevich, S.J. Administration for Public Education. New York: Harper and Row, 1969.

- Leiberman, Myron, "Accountability For Whom? For What?" Phi Delta Kappan, 1970, pp. 193-195.
- Mecklenburger, J.A., Wilson, R.W., and Hostrop. Learning C.O.D. Hamden, Conn.: The Shoe String Press, 1972.
- Quirk, Thomas J., "Some Measurement Issues in Competency-Based Teacher Education," Phi Delta Kappan, Vol. 55 (September 1973).
- Rossi, J.D. Program Budgeting for Improved School District Planning. Report RM-6616-RC, Santa Monica, Calif.: The Rand Corporation, 1961.
- "Stanford's Business Approach to Budgeting," Business Week, Aug. 4, 1973, p. 64.
- Welsh, J.D.C., "Perspectives on Performance Contracting," Educational Researcher, October, 1970, p. 10+.

HOUSING

- Ash, Ellis, "Public Housing Operating Subsidies and Their Allocation by HUD," in U.S. Congress, Senate, Committee on Banking, Housing and Urban Affairs, Financial Condition of Local Housing Authorities, Hearing, March 11 and 14, 1976, pp. 89-92.
- Ball, M., Jacobs, S., and Colavecchio, F., "HIS: A Status Report," Hospitals, Dec. 1972, 48-52.
- Fielding, G.J. and Glauthier, Roy E. Distribution and Allocation of Transit Subsidies in California. Irvine, California: University of California, Institute of Transportation Studies, September 1976.
- Kane, Eneas J., "Statement on Formula Approach," in U.S. Congress, Senate, Committee on Banking, Housing, and Urban Affairs, Financial Condition of Local Housing Authorities, Hearings March 11 and 14, 1976, pp. 140-176.
- Kistoff, Frank S., "Federal Housing Policies Subsidized Production, Filtration, and Objectives," in Housing 1971-1972, an AMS Anthology, ed: George Sternleib, pp. 462-474.
- Notte, Robert, "Statement on Formula Approach," in U.S. Congress, Senate, Committee on Banking, Housing, and Urban Affairs, Financial Condition of Local Housing Authorities, Hearing March 11 and 14, 1976, pp. 126-135.
- Pardee, G., "Patient Care Evaluation is Every Nurse's Job," American Journal of Nursing, October 1971.
- Pydell, Peter C., "Review of Factors Affecting Maintenance and Operating Cost of Public Housing," in Papers and Processes of the Regional Science Association, Working Paper November 27, 1970, pp. 229-245.
- Ribicoff, Abraham A., "Raze or Lower? A HUD Public Housing Project Isn't Fit to Live In," Barrons, Jan. 10, 1972, p. 9+.
- Rubinowitz, Leonard S. Low-Income Housing: Suburban Strategies. Cambridge, Mass.: Ballinger, 1974.
- Sadacca, Robert and Isler, Morton, "Operating Subsidies for Public Housing: A Reply to a Critical Appraisal of the Formula Approach," in U.S. Congress, Senate, Committee on Banking, Housing and Urban Affairs, Financial Condition of Local Housing Authorities, Hearing March 11 and 14, 1976, pp. 25-45.

- Schafer, Robert, "Public Housing Operating Cost, Management and Subsidies," in U.S. Congress, Senate, Committee on Banking, Housing and Urban Affairs, Financial Condition of Local Housing Authorities, Hearing March 11 and 14, 1976, pp. 67-85.
- "Six Goals for a Program of Low-Income Housing and Twenty-five Recommendations," Journal of Housing, July 8, 1963, pp. 253-265.
- U.S. Dept. of Housing and Urban Development. Performance Planning, Budgeting, and Accounting System, (NTIS PB 254 109). A Technical Memo. Number 3, Nov., 1976.
- U.S. Dept. of Housing and Urban Development. Further Reorganization Objective-Oriented Management, (NTIS PB 253 806). A Technical Memo. Number 3, November, 1976.
- U.S. Dept. of Housing and Urban Development, Employee Incentive Program, (NTIS PB 253 804). A Technical Memo. Number 3, November, 1976.
- U.S. Dept. of Housing and Urban Development. Increasing Decision-Making Responsibility at the Property Level, (NTIS PB 254 104). A Technical Memo Number 3, November, 1976.
- U.S. General Accounting Office, Report to the Congress: Local Housing Authorities Can Improve Their Operations and Reduce Dependence on Operating Subsidies, RED-75-321, February 11, 1975.
- "Worst Than Slums: Public Housing is a Movement to the Welfare State," Barrons, July 27, 1970, pp. 1+.

MEDICAL AND HEALTH SERVICES

- Bartlett, W., "Measuring Patient Care," Medical Record News, Vol. 34 (1963), pp. 195-196+.
- Bianco, Emilio A., "The Medical Audit: Powerful Tool for Upgrading Care," Hospital Progress, July, 1970, pp. 72-74.
- Blue Cross Association, "Utilization Review and Control Activities in Blue Cross Plans," Blue Cross Reports, Vol. 4, No. 1 (Jan. 1966).
- Brook, Robert H., "Process and Outcome," in Evaluation in Health Services Delivery: Proceedings of an Engineering Foundation Conference, South Berwick, Maine, August 19-24, 1973, p. 110+.
- Cochrane, A.L. Effectiveness and Efficiency: Random Reflections on Health Services. London: The Nuffield Provincial Hospitals Trust, 1972.
- Collins, Stephen B., "Contractual Purchasing: Indicator of Departmental Performance," Hospitals, Vol. 39 (Oct. 1, 1965), pp. 78-82.
- Decker, Barry and Bonner, Paul. PSRO: Organization for Regional Peer Review. Cambridge, Mass.: Ballinger Publishing Company, 1973.
- Donabedian, A., "Prompting Quality Through Evaluating the Process of Patient Care," Medical Care, Vol. 6 (May-June 1968), pp. 181-202.
- Dorsness, D.L., et. al., "Uses of Daily Census Data in Determining Efficiency of Units," Hospitals, Part I: Vol. 41 (Dec. 1, 1967), pp. 45-48; Part II: Vol. 41 (Dec. 16, 1967), pp. 65+.
- Eisele, C.W., Slee, V.N., and Hoffman, R.G., "Can the Practice of Internal Medicine Be Evaluated?" Annual Internal Medicine, Vol. 44 (1965), p. 144.
- Ellwood, Paul M., "Quantitative Measurement of Patient Care Quality: Part I, Measures of Care," Hospitals, Vol. XL (Dec. 1, 1966), pp. 42-45.
- Ellwood, Paul M., "Quantitative Measurement of Patient Care Quality: Part II--A System for Identifying Meaningful Factors," Hospitals, Vol. XL (Dec. 16, 1966), pp. 59-63.
- Falk, I.S., et al., "The Development of Standards for the Audit and Planning of Medical Care, Part I: Concepts, Research Design, and the Content of Primary Physician's Care," American Journal of Public Health, Vol. 57 (1967), pp. 1118-1136.



- Fanshel, S. and Bush, J.W., "A Health Status Index and Its Application to Health Service Outcomes," Operations Research, Vol. 18 (Nov-Dec., 1970), pp. 1021-1066.
- Fine, Jacob and Moore, Mildred A., "Study of Peer Review of In-Hospital Patient Care," New York State Journal of Medicine, Vol. 71 (Aug., 1971), pp. 1963-1973.
- Georgopoulos, B.S. and Mann, F.C., "The Hospital as an Organization," Hospital Administration, Fall, 1962, p. 51.
- Goldberg, G.A., Needleman, J., and Weinstein, S.L., "Medical Care Evaluation Studies: A Utilization Review Requirement," Journal of the American Medical Assn., Vol. 220, No. 3 (April 1972), pp. 383-387.
- Gottlieb, R.J., "Negative Incentives for Quality Care," New England Journal of Medicine, Vol. 285, No. 526 (Aug. 1971), p. 26+.
- Greenburg, B.G., "Evaluation of Social Programs" Readings in Evaluation Research, ed: Frances G. Caro & Russell Sage Foundation, New York, 1971.
- Gross, R.N., "Problems of Resource Allocation in Health," Public Expenditures and Policy Analysis, Edited by Robert H. Hamman and Julius Margolis. Chicago: Markham Publishing Co., 1970.
- Hand, H.H. and Hollingsworth, A.T., "Tailoring MBO to Hospitals," Business Horizons, Feb. 1975, pp. 45-56.
- Helbig, D.W., O'Hare, D., and Smith, N.W., "The Care Component Score-- A New System of Evaluating Quality of Inpatient Care," American Journal of Public Health, April, 1972, pp. 540-546.
- Horvitz, D.G., "Methodological Considerations in Evaluating the Effectiveness of Programs and Benefits," Inquiry, Vol. 2 (Sept. 1965), pp. 96-104.
- Hulka, Barbara S., "Evaluation of Primary Care in a Total Community: The Indicator Case Model," in Evaluation in Health Services Delivery: Proceedings of an Engineering Foundation Conference, South Berwick, Maine, August 19-24, 1973, pp. 147-172.
- Lembcke, P.A., "Medical Auditing by Scientific Methods," Journal of the American Medical Assn., Vol. 162 (1956), pp. 646+.
- Price, P.B., et al., "Measurement of Physician Performance," Journal of Medical Education, Vol. 39 (Feb. 1964), pp. 203-211.
- "A Private Manager for Medicaid," Business Week, May 19, 1975, p. 45-46.

- Richardson, F., MD., et al., "Rochester Region Perinatal Study," New York Journal of Medicine, Vol. 67 (1967), pp. 1205.
- Sheldon, A.P., "High Marks for Health Systems Management," Harvard Business School Bulletin, Nov-Dec., 1972.
- Sigmond, R.M., "Professional Education for Tomorrow's Hospital Administrators," Hospital Administration, Summer, 1966, p. 28.
- Sigmond, M., "Hospital Effectiveness: A Complex Concept Promises Concrete Results," Hospitals, Vol. XLII: August 1, 1968, pp. 50-55.
- Strickland, S.P., "Intergration of Medical Research and Health Policies," Science, September, 1971, pp. 1101-1102.
- "Symposium on the Crises in Health Care: Problems of Policy and Administration," Public Administration Review, September-October, 1972.
- U.S. Department of Health, Education, and Welfare, Social Security Administration. Conditions of Participation for Hospitals. Washington, D.C., 1966.
- Verda, D.J. and Platt, W.R., "The Tissue Committee Really Gets Results," Modern Hospital, Vol. 91 (1958), p. 74+.
- Young, John P., "Stabilization of Inpatient Bed Occupancy Through Control of Admissions," Hospitals, Vol. 39 (Oct. 1965), pp. 41-48.