AMBULATORY CARE QUALITY ASSURANCE PROJECT

Volume 1: Development and Application of a Model

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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AMBULATORY CARE QUALITY ASSURANCE PROJECT

Volume I: Development and Application of a Model

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FOREWORD

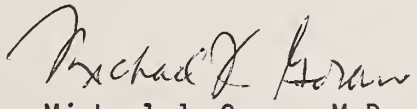
As the Bureau of Quality Assurance began implementation of the PSRO program in hospitals, it soon became evident that the future would require PSROs to be actively involved in ambulatory medical care quality assurance. Since the state of the art of ambulatory care review is far less advanced than that of hospital review, we realized that it would be necessary to develop a sound basis for the careful, gradual movement of PSROs into ambulatory care quality assurance.

This three-volume report is the result of the work completed by Health Care Management Systems, Inc., in one of the first major Bureau contracts to acquire and document knowledge of presently operational ambulatory care quality assurance projects. The purpose of this project was to systematically assess and document existing activities in a variety of health delivery settings across the country. During the course of the project, a generic quality assurance model was developed for use in the design, implementation, and assessment of ambulatory care review systems. This model is now under refinement and is being applied in the Bureau's cooperative ambulatory care quality assurance demonstration project. It represents a significant advance in our ability to design and assess such systems.

This three-part report, which includes a description of the generic model and study findings, description of each of the 27 ambulatory quality assurance systems included in the survey, and a bibliographic index that has been enriched by selected abstracts, should provide the reader with a concise overview of the state of the art. The results of this project are an important part of the foundation upon which to build well-balanced and meaningful PSRO participation in ambulatory care quality assurance. The report also reflects the investigators' concern with ambulatory quality assurance outside the scope of PSRO.

The authors of the report developed their material in a relatively short time to meet the need for fundamental knowledge of existing quality assurance programs to support the implementation of voluntary systems and governmental regulatory programs. It is hoped that any limitations in the material presented herein will be corrected through additional research and careful experimentation and demonstration of new ambulatory quality assurance methods and organization.

We believe that this report will be valuable to those within and outside the Federal Government who are interested in establishing effective quality assurance systems in ambulatory medical care. We are pleased to have provided partial funding to the project and the preparation of this monograph and hope that it will be useful to all who are now engaged in activities leading to improved quality in ambulatory medical care.



Michael J. Goran, M.D.
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ABSTRACT

That quality care assurance is in a state of flux is attested to by current literature in the field and is substantiated by the Ambulatory Care Quality Assurance Project (ACQAP) report. This nationwide survey was undertaken to reveal the state of the art in the United States today. During a study of more than two dozen sites over a wide range of geographic locations, the ACQAP produced a set of basic program procedures, a scoring method, and what appears to be a sound basis for planning, operating and assessing quality care assurance programs. The literature relative to quality assurance in ambulatory care was investigated and a collection of the better references accumulated.

Volume I of the three-volume report contains a detailed description of the ACQAP Model, its scoring system, and its findings. The data collection instrument, a 226-item open-ended questionaire used in the study, is contained in an appendix.

Volume II contains detailed descriptions of the 27 programs reviewed in the course of the ACQAP accompanied by a compact tabulation of their key characteristics for quick reference, so that the reader may compare the study sites with his own.

Volume III is a bibliography containing a general list of the articles and other references found to be most useful to the study. The list is duplicated under several topic headings for the convenience of the reader interested in a particular aspect of quality assurance in ambulatory medical care. A number of the references have been abstracted and the volume also contains a narrative review of the literature.

PROJECT BACKGROUND

Today's medical and political literature reflects concern over the definition, feasibility, acceptability, and cost of conducting widespread review of the quality of medical services. Review of hospital services already has received much attention. Regarding the activity of Professional Standards Review Organizations (PSRO), Hellman (1976) states, "By the end of F.Y. 1977, 120 conditional PSROs will be performing review of about three million hospital admissions." Progress in the review of services to ambulatory patients has been significantly slower and less documentation on the extent of activity is available. This report is the result of interest by the Bureau of Quality Assurance, Department of Health, Education and Welfare, in expanding the information base regarding the state of the art in ambulatory quality assurance activity.

Through funding from The Robert Wood Johnson Foundation, Health Care Management Systems, Inc. (HCMS) is engaged in a three-year project, part of which is intended to expand knowledge of ambulatory care quality assurance and to improve methods for assessing quality of ambulatory medical services. This report also reflects concern with ambulatory quality assurance extending outside the scope of PSRO.

According to Tenney (1972), ambulatory medical care is a broad term usually defined as health services rendered to patients under their own cognizance, at a time when they are not in a hospital or other health care institution. The National Center for Health Services Research and Development (1972) defines an 'encounter' as a "face-to-face contact between a patient and a provider who, at the time of contact, has primary responsibility for assessing and treating or managing the condition of the patient and who exercises independent judgment as to the care of the patient."

Ambulatory medical care is the largest component of the health care delivery system in this country. In 1972, the National Center for Health Statistics estimated that a billion physician visits (including telephone contacts) were made in the United States, an average of 5.0 per person. Seventy-three percent of the population consulted a physician at least once that year. In contrast, there were 28.5 million discharges from short-stay hospitals in 1972, an average of 0.14 per person.

Definition of the concept of "quality assurance" appears to vary with the intent of the user. In a review of quality of care research, Shortridge (1974) reported ten different verbal and operational definitions for ten research projects reviewed. Brook (1975) makes the distinction between quality assessment and quality assurance: quality assessment means measuring the level of quality provided at some point in time, but connotes no effort to change or improve that level of care, whereas quality assurance means both measuring the level of care provided and, when necessary, improving it. The term quality assurance is used accordingly in this report.

Public interest in quality assurance review is evidenced by the passage of Public Law 92-603 which mandates PSRO review operations. Section 1155 (a) (1) states that it is the duty and function of each PSRO to assure, at the earliest date practicable, responsibility for the review of professional activities of physicians and other health care practitioners and institutional and noninstitutional providers of health care services to determine whether such services and items are medically necessary and whether the quality of such services meets professionally recognized standards of health care.

Although ambulatory care review is optional for PSRO, the mandate clearly states the desirability of establishing such review at the earliest date possible. It becomes apparent that in order for regulatory interests to establish sound technical guidelines for the operation of ambulatory quality review programs, examination of technical issues is required.

To the degree to which other interests, including physicians in individual and group practice, state and local government agencies, accreditation organizations, and the general public are concerned with the cost and quality of medical care, technical issues are important outside PSRO as well.

The Ambulatory Care Quality Assurance Project represents the first phase of a two-phase research effort aimed at setting priorities for ambulatory care quality assurance review by the Bureau of Quality Assurance. Figure 1, "Bureau of Quality Assurance Plan: Ambulatory Medical Care Review," presents the Phase I and II objectives. Therefore, the purpose of this investigation was to begin to identify and set priorities for areas of ambulatory care quality assurance that require future examination. After the first year survey, reported here, work will take the form of a series of demonstration and experimental projects designed to investigate technical issues in a more definitive manner.

The general goal of Phase I of the project was to describe past and currently used methods of ambulatory care quality assurance review and to develop major models and strategies for ambulatory care quality assurance evaluation. The general goal was further defined to correspond with (a) the more specific needs of the Bureau of Quality Assurance to identify technical issues which must be examined before PSRO ambulatory review regulatory action is initiated and (b) the research needs as reflected in current literature on the topic of ambulatory care quality assurance review. More specifically, the objectives of the project were:

- To describe the current state of the art
- To develop a classification system for quality assurance programs implemented in various types of delivery systems
- To design initial methods for assessing quality assurance programs
- To identify technical design and implementation strengths; to place priority on weaknesses which should receive attention in future research

FIGURE 1

BUREAU OF QUALITY ASSURANCE PLAN: AMBULATORY MEDICAL CARE REVIEW

Goal

To implement effective and acceptable ambulatory medical care quality assurance review mechanisms in PSROs.

Research and Demonstration Objectives

Phase I (1975-1976)

Objective: To identify technical problems that require further investigation.

Method: Survey quality assurance programs throughout the United States.
Apply assessment tools; identify and set priorities for problems that require investigation; specify the issues to be tested in Phase II.

Result: Recommendations to the Bureau of Quality Assurance setting priorities for the types of problems that must be investigated during the Phase II demonstration projects.

Phase II (1976-1978)

Objective: To investigate technical problems identified in Phase I.

Method: Implement PSRO demonstration projects.
Conduct specialized studies to investigate problems.

Result: Recommendations to the Bureau of Quality Assurance for administrative and regulatory consideration.

In the course of the project a model for the measurement of programs that attempt to assure high quality in the medical care of ambulatory patients was developed. Described in this volume is the model itself and how it was applied to a survey of quality assurance programs.

The project included on-site review of 27 quality assurance programs in locations throughout the United States. Volume II,"Program Descriptions" presents detailed descriptions of the sites visited and their programs.

Volume III, "Bibliography and Selected Abstracts," contains an index, culled from a large selection, of journal articles and other references which are notable for their relevance, timeliness and general excellence. The volume also contains subindexes of references from the main index, reclassified by topic. Selected articles are abstracted and a review of the literature is presented.

SURVEY DESIGN

The design used in this study was intended to be of a descriptive type, as opposed to an experimental study. A rigorous descriptive study is required to have breadth and depth and must insure that the data collected are reliable and valid. Questionnaires and other data collection instruments must be designed and thoroughly tested with a view to avoiding error and bias. They must be used by well trained and qualified persons and should elicit a sufficiently large sample of needed data to accurately represent the population being studied (Galfo and Miller, 1965).

Findings of this study are offered in the light of the requirements outlined above. Because of the sampling design dictated by the nature of the investigation, no specific generalizations to populations outside the study sample were intended. However, all findings may be seen as hypotheses for future study and empirical refinement. Details of methods used are presented in Appendix I, "Ambulatory Care Quality Assurance Program Project Methods."

Figure 2, "Survey Design," illustrates the conceptual plans for the survey. Under contract stipulation, the survey was to include an unspecified number of ambulatory care quality assurance programs throughout the United States. The 27 sites finally included in the study were selected on the basis of the following screening criteria:

(1) Evidence of ambulatory quality assurance program in operation

(2) Ability to provide initial documentation regarding quality assurance (Q.A.) activities

(3) Evidence of high interest and willingness to participate in the time consuming site visit and data collection procedures

(4) Location within the continental boundaries of the U.S.

(5) Capability of being classified by the majority of selected analysis factors

The sites included in this survey were selected using what Riley (1963) calls the focused sample. A focused sample allows the researcher to concentrate on the explanatory variables of immediate research interest by holding constant other extraneous variables outside his concern. Extraneous variables are controlled through the sampling procedure itself rather than by statistical analysis.

A sample becomes less representative when it is selected using predetermined criteria, but it does provide a means for assessing and evaluating the relationship among variables. In this study, the criteria for site selection may bias the study sample. Aside from including only fully operational quality assurance programs which could provide program documentation, the voluntary nature of the sample may have introduced an additional bias. Use of a focused sample coincides with the purpose of this investigation, which is to survey and assess operational programs. The focused

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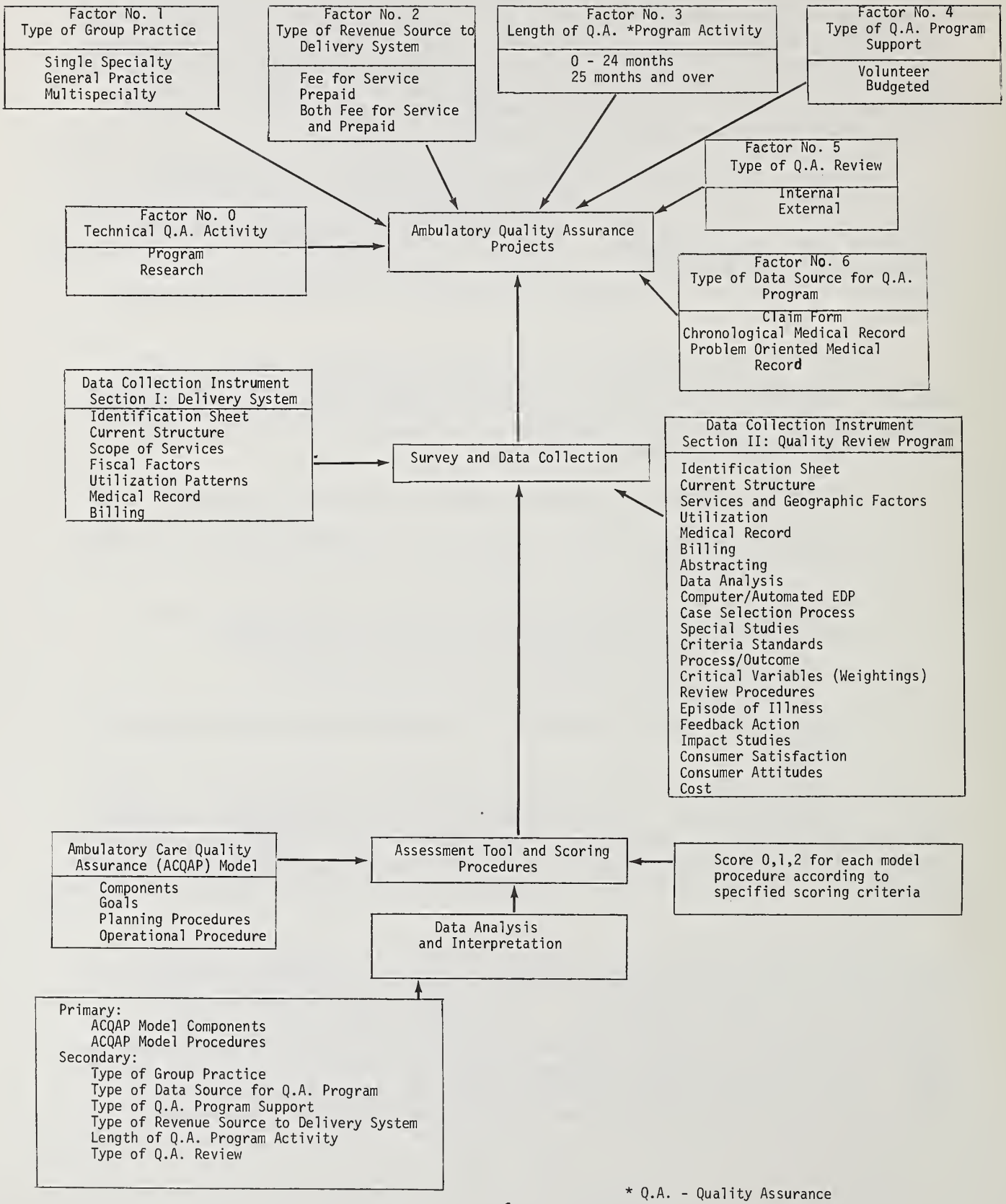
FIGURE 2

SURVEY DESIGN



* Q.A. - Quality Assurance

sample helps to eliminate the unwanted and opposite bias of including ineffective, poorly organized, undocumented and unsystematic quality assurance programs in the study.

The survey group was classified by the factors listed in Figure 2. Definitions of the factors and results of the classification are presented in Figure 3. If, in certain cases, a site could not be classified because of unavailable data, or a factor that was not suitable, the site was excluded from classification and analysis for that particular factor. Further details of the site identification, selection, and classification procedures are included in Appendix I, "Ambulatory Care Quality Assurance Project Methods."

The Data Collection Instrument, developed and pilot tested by survey staff, consisted of a 37-page, 226-item, open end questionnaire divided into two major sections: the Delivery System and the Quality Review Program. Figure 2 lists the content areas at which the questionnaire was aimed. The questions are listed in Appendix II of this volume. Data collection for each quality assurance program involved previsit, on-site visit, and postvisit information gathering to complete the items in the Data Collection Instrument. In order to assess systematically the diverse quality assurance programs, it was necessary to develop an assessment tool which would provide a framework for site analysis. The development and application of the final assessment instrument, called the Ambulatory Care Quality Assurance Program (ACQAP) Model, is described in this volume.

Data analysis was aimed at two sets of questions. The primary questions this study addresses focus on issues related to the technical content of ambulatory care quality assurance programs (Factor No. 0). Secondary survey questions are aimed at the relationship between scores and delivery setting and quality assurance program (Factors 1-6) characteristics.

The survey questions are outlined below:

Primary Survey Questions (Factor No. 0, Technical Q.A. Activity):

1. In the ACQAP Model, what is the relationship between planning and operation scores?

2. How do ACQAP Model scores rank across all survey sites?

3. Which components in the ACQAP Model scored lowest? Highest?

4. Which procedures in the ACQAP Model scored lowest? Highest?

5. What informal findings might be hypothesized for future testing and development?

FIGURE 3

SURVEY SITES CLASSIFIED BY FACTORS

(N=27)

Factor Number and Categories	Operational Definitions *	No. Sites Included In Analysis	Total Sites Analyzed
(0) Technical Q.A.*** Activity	Related to ambulatory qualtiy assurance subject matter as reflected in current literature; includes activities outlined in the ACQAP Model. ***		
Q.A. Program	Evidence of actual or intended quality assurance activity in all nine components of the ACQAP Model	23**	23
Q.A. Research	Conducts in depth study of specified components of a review system; no intended ongoing activity in all nine components of the ACQAP Model.	3 Not included in analysis See Vol. II	
(1) Type of Group Practice	Delivery of medical services by 3 or more physicians formally organized to provide medical call, consultation, diagnosis, and treatment; joint use of equipment in one facility; income distributed in accordance with methods usually determined by members of the group.		
Single Specialty	Composed exclusively of physicians in 1 specialty other than General Practice	3	17
General Practice	Composed exclusively of general practitioners.	4	
Multi-Specialty	Composed of physicians in 2 or more specialties	10	
(2) Type of Revenue Source to Delivery System			
Fee for Service	For at least 80% of service rendered, fee schedule is calculated from which patients are billed charges.	3	18
Prepaid	For at least 80% of services rendered, a guaranty of services is offered by a plan to an enrolled group in exchange for a prepaid per capita fee or involves a guaranty of services supported through prepaid governmental grant or funds.	11	
Both FFS and PP	A combination of billing patients based on schedule and guaranty of service based on prepaid patient fees	4	
(3) Length of Q.A. Program Activity	---		
0 - 24 Months	Formally allocated resources or initiated activity in the system surveyed by the ACRE project within 24 months before June, 1976	12	23
25 Months and Over	Formally allocated resources or initiated activity in the system surveyed by the ACRE project 25 or more months pervious to June, 1976	11	
(4) Type of Q.A. Program Support	Resources allocated to develop and operationalize a quality assurance program		
Volunteer	Resources allocated are not budgeted for specific activities covered in a quality assurance program, but are internalized in personnel salaries or facility overhead.	10	23
Budgeted	Resources allocated are budgeted line item funds from within the organization or are derived from sources outside the organization (gov't or private agencies) and are budgeted specifically for quality assurance activities.	13	
(5) Type of Q.A. Review	---		
Internal	Review conducted by in-house affiliated group.	17	22
External	Review conducted by outside nonaffiliated group.	5	
(6) Type of Data Source for Q.A. Program	---		
Claim Form	A document with a series of data elements used to denote medical procedures and activities; submitted for payment or reimbursement of cost of those medical activities. May be submitted to hospital insurance companies, agencies empowered to distribute Title V, XVII and XIX funds, or other fiscal intermediaries.	3	19
Chronological Medical Record	Data in the record are not organized by problem. Information may be organized in chronological sequence as it is recorded or returned to the record or in other convenient ways.	7	
Problem Oriented Medical Record	A record system which emphasizes a list of patient problems to be managed, including preventive, psychiatric and environmental problems. The plans for each problem, progress notes and appraisal are related to the problem list, which is kept current on a face sheet on the patient's chart. The record follows a specific format through S.O.A.P.,**** which asks for subjective assessment, objective assessment and plans and analyses.	9	

* Sources of definitions are: AMA Classification of Practices and Financing Mechanisms, Review of Administrative Medical Literature, and various definitions used by government agencies and fiscal intermediaries.

** Of the 27 Survey Sites, 4 were not included in this analysis since 3 were research projects and 1 had missing data at the time of analysis.

*** Q.A. - Quality Assurance

**** S.O.A.P. - Subjective - Objective Assessment Plan

Secondary Survey Questions: (Factors 1 to 6, Setting and Q.A. Program characteristics):

1. What factors and categories appear to affect the ACQAP Model total score?

   a. Type of Group Practice (single specialty, general practice, and multispecialty)

   b. Type of Revenue Source to Delivery System (fee for service, prepaid, and both fee for service and prepaid)

   c. Length of Quality Assurance Program Activity (0 to 24 months and 25 months and over)

   d. Type of Quality Assurance Program Support (volunteer and budgeted)

   e. Type of Quality Assurance Review (internal and external)

   f. Type of Data Source for Quality Assurance Program (claim form, chronological medical record, and problem-oriented medical record)

THE AMBULATORY CARE QUALITY ASSURANCE PROJECT MODEL

This section presents the rationale behind construction of an ambulatory care quality assurance model. Both widespread needs for research and the assessment requirements of the Ambulatory Care Quality Assurance Project (ACQAP) are discussed; the purpose of the ACQAP Model is specified.

STATEMENT OF PURPOSE

Ambulatory care quality assurance research and development has been aimed at select, and oftentimes isolated, program elements. For example, extensive effort has been applied to such areas as program identification and criteria development (Gonnella et al., 1975, 1976; Hare and Barnoon, 1973; Kessner et al., 1973; Novick et al., 1976; Rosenburg, 1975; Thompson and Osborne, 1974, 1976; Wagner et al., 1976; Williamson, 1971, 1973); data sources (Fessel and Van Brunt, 1972; Hurst, 1971; Komaroff et al., 1973; Kaufman et al., 1974; Lyons and Payne, 1974; Margolis et al., 1973; Thompson and Osborne, 1976; Weed, 1971; Wirtschafter and Mesel, 1976); and corrective action mechanisms (Brook et al., 1975; Brown and Uhl, 1970; Pozen and Bonnet, 1976; Slee, 1972).

The emphasis of research on selected areas of a quality assurance program is commendable since valid methods and approaches must continue to be conceptualized, tested, and described before widespread use should be recommended. It is this type of research which must continue to ask the question, "How valid is the problem identification, criteria, and review process?"

The ACQAP Model addresses a broader question: "How is an ambulatory care quality assurance program defined? What are the minimum elements, procedures, and requirements of a comprehensive program?" It should be noted that the first question regarding the validity of procedures is a subset of the second question regarding program requirements. That is, if one develops minimum program requirements, establishing the validity of methods is one requirement of primary importance. The ACQAP Model represents an attempt to consolidate what has been learned from specific research areas, programs and approaches into a list of specifications applicable to all ambulatory review systems.

Currently, the literature* is devoid of formalized tools aimed at specifying minimum requirements of a comprehensive ambulatory care quality assurance program. There are publications indirectly related to requirements which appear in the form of procedural or program manuals. Program manuals for inpatient review specify requirements and procedures for individual approaches (American Hospital Association, 1972; Department of Health, Education and Welfare, 1975; Joint Commission on Accreditation of Hospitals, 1973).

* See Volume III, Ambulatory Care Quality Assurance Project: Bibliography and Selected Abstracts of this report.

Recently, reports describing individual ambulatory review approaches have begun to emerge (Michnich et al., 1976; Rubin, 1973; Williamson, 1973) but the literature for the most part focuses on specific methods for developing and conducting review rather than on requirements for programs in general.

In addition to needing the ACQAP Model to complement conceptualization and definition of ambulatory quality review systems, HCMS investigators, while designing the project, required an evaluative tool which could be used to describe, distinguish, and assess elements of ambulatory quality assurance programs throughout the United States. This research need was satisfied through subsequent ACQAP Model development. In summary, the purpose for development of an ACQAP Model was: 1) To begin to operationally define minimum requirements of ambulatory quality assurance programs; and 2) To have an evaluative tool for program assessment.

The following material explains the Ambulatory Care Quality Assurance Project (ACQAP) Model as it was developed for the project. The developmental procedures, review by consultants, and resulting refinements are discussed. Finally, model limitations and future plans are described.

THE ACQAP MODEL

The model presented in Figure 4, "Components of Ambulatory Care Quality Assurance Model," consists of nine components. Each component has a "goal" describing the purpose of activity. Within each component (except Component I) are "Planning Procedures" and "Operational Procedures" designed to specify all managerial and methodological tasks which must be achieved if the component goal is to be met. The model consists of 99 broadly defined procedures: 39 planning and 60 operational.

MODEL DEVELOPMENT

Investigators designed the model according to three basic criteria. The model must:

1. Represent minimum requirements (procedures) of any formal quality assurance program independent of the method applied
2. Outline procedures necessary for systematic and thorough program design and implementation
3. Lend itself to further refinement, particularly to the development of indicators which describe the degree to which requirements (procedures) have been met

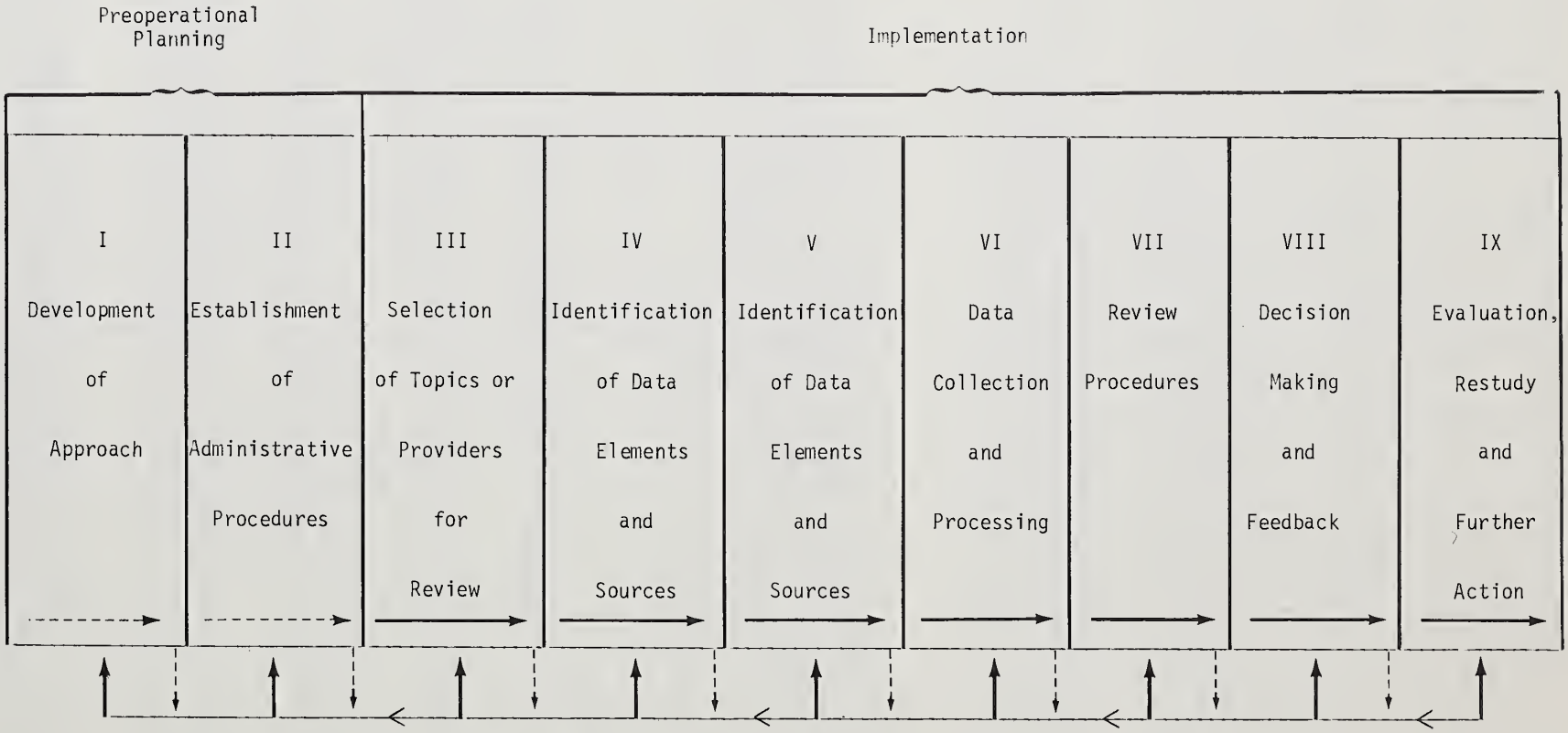
Initial procedures outlined in the model were identified and consolidated through a review of literature* on ambulatory care quality assurance research and operational programs and through on-site orientation to operational quality assurance programs by HCMS investigators.

* See Volume III, Ambulatory Care Quality Assurance Project: Bibliography and Selected Abstracts, of this report.

FIGURE 4

COMPONENTS OF

AMBULATORY CARE QUALITY ASSURANCE MODEL



Note: Each time an audit is initiated, the flow begins with Component III. Frequently, activity is completed in components III through VIII during a topic identification phase and then the cycle is recompleted in a more focused and comprehensive review

COMPONENT I: DEVELOPMENT OF APPROACH

Goal and Procedures

GOAL: To compile, analyze and utilize selective information to design an approach for a quality assurance program to meet the stated goals and procedures stated in the components.

OPERATIONAL PROCEDURES

a. To examine ambulatory quality assurance literature
b. To visit other research projects and operational programs
c. To solicit administrative and medical staff input regarding the plans for a quality assurance program
d. To solicit experienced consultants and staff to assist in developmental work
e. To discuss methodology for the quality assurance program with administrative and medical staff
f. To document quality assurance goals and objectives
g. To establish priorities for these goals and objectives
h. To define quality in relation to these goals and objectives
i. To establish budget requirements and budget constraints
j. To establish other constraints
k. To outline an administrative program
l. To outline quality assurance methodology

COMPONENT II: ESTABLISHMENT OF ADMINISTRATIVE PROCEDURES

Goal and Procedures

GOAL: To establish an administrative structure to develop and implement procedures for putting the quality assurance program in operation.

PLANNING PROCEDURES

a. To develop guidelines for the establishment of a quality assurance structure which will be responsible for developing the following administrative guidelines and procedures
b. To develop guidelines for defining all organizational structures, functions and units necessary for conducting the quality assurance program
c. To develop guidelines to assure staff motivation and participation
d. To develop guidelines for assigning responsibilities to personnel
e. To develop guidelines for maintaining confidentiality of information
f. To define communication needs
g. To develop guidelines for budgetary allocation
h. To develop guidelines to determine the degree to which quality assurance goals are being achieved
i. To develop guidelines to assess and revise quality assurance methodology and procedures as required
j. To develop guidelines for monitoring components

OPERATIONAL PROCEDURES

k. To implement the quality assurance structure which will be responsible for implementing the following administrative procedures
l. To define all organizational structures, functions and units necessary for conducting all quality assurance programs
m. To assure staff motivation and participation
n. To assign responsibilities to personnel
o. To maintain confidentiality of information

Figure 4
(continued on next page)

COMPONENT III: SELECTION OF TOPICS AND PROCEDURES FOR REVIEW

Goal and Procedures

GOAL: To determine what aspects of the delivery systems will be reviewed and the method by which cases will be selected for review.

PLANNING PROCEDURES

a. To develop guidelines for identifying topics and providers for review
b. To develop guidelines for the selection of topics and providers for review

OPERATIONAL PROCEDURES

c. To identify topics and providers for review
d. To select topics and providers for review
e. To assure cases reviewed are representative of the total number of topics and providers under review
f. To assure the review system is capable of measuring changes in the topics and providers under review

COMPONENT IV: CRITERIA DEVELOPMENT

GOAL: To establish guidelines for criteria development and performance level(s) for the topics and providers being reviewed.

PLANNING PROCEDURES

a. To develop guidelines for criteria
b. To develop criteria
c. To develop guidelines for performance levels
d. To develop performance levels

OPERATIONAL PROCEDURES

e. To assure that criteria and performance level developers are representative of the total provider population to be reviewed
f. To assure that the criteria and performance levels are applicable to topics and providers chosen for review
g. To implement criteria and performance levels
h. To assure that criteria and performance levels are presented in an understandable manner to providers
i. To determine the validity of the criteria and performance levels
j. To determine the degree to which review decisions based on criteria and performance levels will be reliable
k. To determine the acceptability of criteria and performance levels to those being reviewed

COMPONENT II (continued)

p. To establish channels and methods for communication among organizational units to meet needs
q. To implement cost control procedures
r. To determine the degree to which quality assurance goals are being achieved
s. To pilot test, assess and revise quality assurance methodology and procedures
t. To implement a monitoring system for components

COMPONENT V: IDENTIFICATION OF DATA ELEMENTS AND SOURCES

GOAL: To select the data elements required to conduct review and a valid source from which data elements can be collected.

PLANNING PROCEDURES

a. To develop guidelines for the selection of data elements
b. To develop guidelines for determining the data source(s) from which data elements can be selected

OPERATIONAL PROCEDURES

c. To select the data elements from appropriate sources
d. To determine the reliability of the data source(s)
e. To determine the validity of the data source(s)

Figure 4 continued

COMPONENT VI: DATA COLLECTION AND PROCESSING

GOAL: To develop and implement procedures for the collection, compilation and reporting of data to be used in review.

PLANNING PROCEDURES

a. To develop guidelines for data collection, compilation and reporting procedures
b. To develop guidelines for assuring that data for review are consistently delivered to appropriate reviewers
c. To develop guidelines for assuring that data can be accumulated and retrieved over time

OPERATIONAL PROCEDURES

d. To implement procedures for data collection, compilation and reporting
e. To assure that the data collection and processing procedures are reliable
f. To assure that data for review are consistently delivered to appropriate reviewers
g. To assure that data for review appear in an understandable, useful and acceptable form
h. To assure that data is accumulated and retrievable over time

COMPONENT VII: REVIEW PROCEDURES

GOAL: To determine the review procedure as it relates to providers and topics chosen for review assessment.

PLANNING PROCEDURES

a. To develop guidelines for conducting review procedures
b. To develop identifiable outputs of the review process
c. To develop guidelines to assure inter- and intrareliability of review process
d. To develop guidelines to control review bias
e. To develop guidelines for requesting additional information for review
f. To develop guidelines to assure review outputs are forwarded to the appropriate decision-making sources

OPERATIONAL PROCEDURES

g. To conduct review process as outlined in guidelines
h. To assure inter- and intrareliability of review process
i. To assure reviewer's requests for additional information for review purposes are fulfilled
j. To assure review outputs are used in decision-making and feedback action
k. To assure review process draws out problems related to at least one of the following: professional competence, patient factors or institutional factors

COMPONENT VIII: DECISION MAKING AND FEEDBACK

GOAL: To develop and implement timely and acceptable feedback procedures based on decisions made during the review process.

PLANNING PROCEDURES

a. To develop guidelines for timely and acceptable feedback procedures
b. To develop guidelines for decision making based on review process and output
c. To develop guidelines for requesting additional information for decision making
d. To develop guidelines to assure decisions are forwarded to appropriate feedback and action sources
e. To develop guidelines to assure that positive results are presented to providers
f. To develop guidelines to assure that negative results are presented to providers
g. To develop guidelines to allow providers to appeal decisions
h. To develop guidelines to allow providers to appeal feedback or action

COMPONENT IX: EVALUATION, RESTUDY AND FURTHER ACTION

GOAL: To assure that issues identified through the review process are addressed in terms of evaluation, impact, restudy, and further action as required.

PLANNING PROCEDURES

a. To develop guidelines to determine the extent to which the problem was solved by corrective action
b. To develop further action or restudy based on the extent to which the problem was solved
c. To develop guidelines for revising the methodology and procedures for further action or restudy as needed
d. To develop guidelines to assure that appropriate system revision, based on evaluation results, is conducted

OPERATIONAL PROCEDURES

e. To determine the extent to which the problem was solved by corrective action
f. To implement further action or restudy based on the extent to which the problem was solved
g. To insure reliability of further action or restudy
h. To insure validity of further action or restudy
i. To assure that appropriate system revision, based on evaluation results, is continued

To help assure the validity and appropriateness of model components, goals, and procedures, the first draft of the ACQAP Model was distributed to 15 quality assurance consultants in related fields throughout the country. The consultants, listed in Appendix II, were asked to critically comment on the model content and to make additions or deletions. Once input was received comments were summarized in tabular form to assure anonymity. The study staff then reviewed consultant comments with two advisory board members, and modifications were incorporated into the final model.

SCORING METHODS

The survey of ambulatory care quality assurance review systems required ACQAP Model scoring methods that would indicate the degree to which each procedure had been accomplished for each system reviewed. Figure 5, "Scoring Criteria," presents a description of the three-point (0,1,2) scoring system for both planning and operational procedures contained in the model.

To control bias in the assignment of scores, the scoring process was divided into two stages.

1. Independent Scoring Session

   Two or three HCMS staff members, each working independently, scored the level of activity for each site on all objectives. This process involved three steps:
   a. Obtaining the completed reference file and reviewing all information in the file
   b. Assigning appropriate score values to each objective for all components
   c. Coding these results on the prescribed tally sheet

2. Joint Assessment Meeting

   To assign a final score to each site, the raters met to resolve disagreements and come to a consensus. The assessment meetings usually involved extensive discussion, justification and reexamination of information to support the assignment of a particular score. A single consensus score was assigned to each procedure.

Interrater reliabilities were calculated for the two or three raters assigned to score each site. Reliabilities were determined by subtracting the ratio (expressed as a percentage) of the number of disagreements between judges to the total possible disagreements from 1.00. Reliabilities between judges ranged from a low of 0.68 to a high of 0.99 with an average overall reliability of approximately 0.87. Appendix IV, "Interrater Reliabilities," presents the reliability scores for each site.

FIGURE 5

Scoring Criteria

Points	Planning Procedure Criteria
0	No plan for the procedure has been made. No documents address the need for the procedure, no mention made during the site visit that a systematic effort had been made to discuss the procedure with other members of the site staff.
1	The procedure has been partially planned or is in the planning process. This means that the procedure is not operational and is not ready for implementation. This partially planned procedure may be documented in written or verbal form, but there must be evidence that some systematic attempt has been made to discuss and consider the procedure with other staff members.
2	The procedure is fully planned and ready for implementation. The procedure must be documented in written form by the site staff.

Points	Operational Procedure Criteria
0	The procedure is not implemented or operational. There is no written or verbal evidence that the procedure is a part of the quality assurance program.
1	Procedure is partially implemented or operational. This means that the procedure is not administered in a systematic and routine way. The procedure may be addressed in an informal and irregular fashion.
2	The procedure is fully operational. This means that the procedure is a routine and systematic part of the quality assurance program. Explicit schedules and time frame dictate the operation of the procedure.

To standardize scores for all components, the ratios of achieved scores (0,1,2) to total possible scores were calculated. For example if a component had six procedures, then a total possible score would be 12 (i.e., 2 x 6). If the component received a total of only six points (e.g., one for each procedure), then the achieved score would be 6 (i.e., 1 x 6). Thus the ratio could be expressed as the achieved score divided by possible score of 6/12 = 0.50. Ratios were calculated for each total component and for planning and operational procedures within each component.

Scores for a site can be interpreted as follows:

Site Total Score - indicates the degree to which the site has achieved, documented, systematized, and operationalized ACQAP model procedures across all components; i.e., the comprehensiveness of the quality assurance review system.

Site Total Planning Score - indicates the degree to which the site has documented systematic planning procedures across all components outlined in the ACQAP Model.

Site Total Operational Score - indicates the degree to which the site has systematically implemented ACQAP Model operational procedures across all components; that is, the degree to which operation schedules and time frames are documented, predictable, and made explicit.

Site Component Score - indicates the degree to which a site has achieved the ACQAP procedures for the particular area of activity (i.e., component); indicates relatively strong and weak areas of the total program. Component scores are interpreted as total planning and operational scores above but for one component only.

Site Procedure Score - indicates the degree to which a site has achieved the particular ACQAP procedure (requirement); indicates relatively strong and weak procedures of the component or total program. Procedure scores are interpreted as total planning and operational score as above but for one procedure only.

LIMITATIONS AND FUTURE REFINEMENT

The ACQAP Model remains in a developmental stage. The validity of the model must continue to be examined in terms of its ability to distinguish between programs which effectively improve medical care and health. Several types of validity are important and are discussed here: content validity, a pragmatic approach to concurrent and predictive validity, and construct validity.

At this point, initial content validity (e.g., a systematic comparison of the model goals and procedures in ambulatory care quality assurance programs) appears acceptable. Content was reviewed independently by fifteen consultants and comments were incorporated into the final model. Also, the model has been applied to twenty-four quality assurance review programs without encountering major content problems.

However, refinement must continue to focus on revision of goals, component names, and procedures. There appears to be a need to examine word usage, specificity, and completeness. For example, a planned change such as the one below increases specificity and measurability:

Old procedure: To select topics or providers for review

New procedure: To assure topics are selected on the basis of:

a. Amenability of medical information
b. Prevalence
c. Risk to patients
d. Potential achievement of cost and health benefit
e. Potential for change through feedback procedures

In terms of completeness, investigators involved in the survey informally noted potential procedure areas which are either not currently contained in the model or cannot be distinguished in the model. These areas, listed below, will be examined during the refinement phase.

1. Most programs in planning quality review activities anticipated a consistent activity level, usually in terms of number of topics to be reviewed, amount of data to be collected and physician time to be allocated to the program. Once programs became operational, however, fluctuations in the amount of quality assurance activity usually occurred over long periods (six to twenty-four months). This effect appears to be directly related to the service demands placed on the resources of the medical practice. Unanticipated fluctuation in quality assurance activity was also related to the low priority of quality assurance programs in many of the practices. Quality review was often viewed as a function that could be reduced or completely stopped for a period of time without having any effect on the quality of services delivered. The current model does not measure this type of activity or fluctuations which may occur.

2. Goals among programs varied considerably. Cost and utilization control was the primary goal in some programs, others established improved quality of medical care as the most important goal. Some programs were conceived as research projects with methodologic development and improvement as the primary focus. Others were interested in establishing an ongoing program as part of the operation of their group practice. The current model fails to distinguish among types of goals and there is no mechanism for measuring the influence of goal conflict on the success of the program.

3. Realistic budgeting, development of appropriate organizational structure and design of effective management plans within the organization were important to quality assurance program success. The model is not equipped to provide the data needed to make qualitative assessment of administrative functions.

4. Professional and administrative staff involvement and commitment in the planning process and operational phases appear to be essential for program success. The model does not facilitate assessment of staff involvement, especially in the planning phase where documented plans are the only source of information.

5. Group practices with the most success in developing quality assurance programs were those that had reached fiscal and organizational stability before the review program was implemented. The model currently does not measure stability of the delivery setting.

6. Successful quality assurance program operations usually employed a key person to direct the program and thereby increased staff commitment to the program as well as consistency and continuity of program activity.

7. Many of the quality assurance programs appear to be viewed as projects rather than ongoing functions of the group practice. This suggests that ambulatory care quality assurance within many of the practices is at the initial stage of evolving to a routine function.

Another area of refinement will be the attempt to incorporate an additional activity into the model. This activity is "topic verification." Verification of the topic chosen for review may be seen as a pilot or feasibility study. It occurs after a quality assurance program has identified a potential topic for review, but before it commits the sizable resources that are required by the review process.

Sample data are collected and analyzed to verify that the potential topic chosen for review is likely to be a problem upon extensive review (i.e., a more complete set of criteria and more cases). Screening criteria are developed (or taken from a larger list developed for that topic), based on their ability to provide indications of problem areas. Data elements for the measurement of patient, provider or institutional behavior are identified and data are collected for a set of cases. A reviewer decides whether a problem exists for each case by comparing its data profile to the criteria. The topic verification judgment is based upon inferring from the pilot data an expectation of the prevalence and seriousness of the problem in the community. A decision is made concerning the utility of committing the resources required for a full audit.

Some degree of pragmatic validity for determining the usefulness of the measuring instrument as an indicator (concurrent validity) or predictor (predictive validity) exists in the model since quality assurance procedures and programs which received high scores on the model were those which, in the opinion of investigators not involved in scoring, were most systematic, comprehensive and acceptable in terms of procedures measured.

Further pragmatic validation will be examined through two techniques. First, correlation of scores assigned independently by experts assumed to be able to judge the validity of a program in terms of its data, criteria and medical decision-making with scores assigned by "nonexperts" add insight to the usefulness of the tool for measuring existing program attributes. The second technique is to correlate program scores to the degree of impact the program has on what it is designed to affect (e.g., physician behavior, consumer behavior, quality of medical care, etc.). This method requires careful definition of the goals of quality assurance review and the construct of "quality." It leads the validation process into the area of construct validity (i.e., the degree to which scores obtained upon use of the model form a pattern consistent with what is known about the construct of "quality" and its assurance). Construct validity is the most difficult to establish because of the vague and varied definitions of quality of medical care as well as the different purposes for implementing quality assurance programs.

Plans for model refinements in the next stage of development focus on the validity questions described. The model will be applied and tested in six ambulatory review systems. The goal is to refine accuracy of model content and scoring procedures to further define what scores on the model indicate or predict, and to develop methods for use of the model as an assessment tool. Empirical methods, rather than normative, must be developed to test and define the minimum set of procedures to be included in the model.

POTENTIAL APPLICATIONS

Given the discussion of limitations, it appears that the ACQAP Model could be used for three types of ambulatory quality assurance activity: (1) design and development of quality review systems, (2) assessment of operational review systems and (3) descriptive studies.

The ACQAP Model, with its list of procedures which must be achieved, is a useful tool for guiding the design and development of ambulatory care quality assurance systems. If used in a subjective checklist fashion, the model helps to assure that specific procedures are not overlooked, that a systematic, sequential approach is used in the development phase, and that communication among system developers is structured.

An example of the manner in which the model can be used as a checklist is presented in Figure 6, "System Development Checklist." Model Component 9, as it is developed, is subjected to review in order to determine whether model procedures are being planned, developed or implemented.

As progress is made, each procedure is checked to indicate progress made for that procedure. If progress towards implementation appears inadequate, attention to the procedure and the causes for its delay can be analyzed. The model, when used frequently in this manner, will help to assure thorough planning and implementation of quality assurance procedures.

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FIGURE 6

AMBULATORY CARE QUALITY ASSURANCE PROJECT MODEL
SYSTEM DEVELOPMENT CHECKLIST
SAMPLE: COMPONENT 9

Operational Procedures:	Planning Stage	Developmental Stage	Implemented	Progress
e. To determine the extent to which the problem was solved by corrective action	X	X	X	One audit restudied indicates need for continued feedback to selected individuals. May alter feedback approach.
f. To implement further action or restudy based on the extent to which the problem was solved	X			Plans for modified feedback
g. To insure reliability of further action or restudy	X			Plans to contact all providers who did not meet standards during restudy
h. To insure validity of further action or restudy	X	X		
i. To assure that appropriate system revision, based on evaluation results, is continued	X			Feedback mechanism may be altered

DEFINITIONS

Planning Stage - Receives an X when procedure is being discussed, planned and written, as evidenced by documentation of system design, minutes, memos, etc.

Developmental Stage - Receives an X when time is spent testing methods for achieving the procedures; work is ongoing to test and implement the procedure.

Implemented - Receives an X when the procedure has been achieved and no major change in the method is required; procedure could be scheduled, routine, and predictable.

The ACQAP Model also appears to have potential for use as an assessment tool. In its present form, assessment of system activity (e.g., the frequency of procedure implementation) is possible through use of a checklist format such as that described in Figure 6. The next step in the assessment process must focus not only on whether the procedure was accomplished but on how well it was achieved. The present model does not contain indicators of how well procedures are achieved; the quality assurance system itself must set standards applicable to its unique program and assess itself against these standards.

Not every ACQAP Model procedure lends itself equally well to assessment in the form of standard setting. For example, it is more feasible to set a standard for a procedure which states, "To assure that the data collection and processing procedures are reliable," than for a procedure such as, "To determine the validity of data sources." Therefore, standards probably would not be set for all procedures or the degree of specificity would vary according to the goals of the quality assurance system. One major objective of the refinement phase will be to develop procedures along with standards which are uniformly applicable across ambulatory quality assurance programs.

Finally, the ACQAP Model could be used as a tool for conducting a descriptive study to analyze factors affecting quality assurance systems. For example, one may wish to know how the size of a physician staff affects the implementation of a quality assurance review program. Assuming the ACQAP Model is applied and scored as in the survey, specific analysis to identify factors contributing to high or low scores is possible. The next section contains a case study illustrating one possible descriptive study method. The results of such a case study help to indicate factors which might be considered when implementing a program with a large or small staff.

In conclusion, application of the ACQAP Model has potential in three areas. First, a guide to system design and implementation; second, as a tool for program assessment and third, to assist in studies aimed at analyzing factors within programs. It is recognized that the model requires further refinement, testing, and validation; as these activities continue, the value of the ACQAP Model for system design, assessment, and study will continue to increase.

SAMPLE CASE STUDY: PHYSICIAN STAFF SIZE AND AMBULATORY QUALITY ASSURANCE PROGRAMS.

Question

How does the size of physician staff affect the development of quality assurance program plans and the subsequent implementation of those plans?

Method

The purpose of this case study is to illustrate potential applications of the ACQAP Model to the analysis of quality assurance programs. Since the purpose is illustrative, the case study is based on the analysis of four programs to simplify the presentation. A larger sample would be required to reach more definitive conclusions if this case study were to be replicated. Physician staffing is defined as the number of physicians employed in a setting to deliver health care. For this definition, no distinction is made between part-time and full-time physicians since it is assumed that for quality assurance activities to be comprehensive those activities must address all physicians within a setting. Four quality assurance program sites are analyzed: large staff sites A and B had 65 and 78 physician staff members and small staff sites Y and Z had 4 and 6 physician staff members. All sites have been in operation for the same amount of time.

Components III (Selection of Topics and Providers for Review) and VIII (Decision Making and Feedback) of the ACQAP Model were chosen since the general goals of these two components and specific procedures relate directly to physician involvement in quality assurance activities. Within each component, procedures were chosen to more specifically analyze quality assurance activities in which physicians or total physician staff size seemed critical to the planning and operation of a quality assurance program.

The analysis examined two areas:

a. The difference for planning scores between sites with large and small physician staffs

b. The difference for operational scores between sites with large and small physician staffs

The purpose of analysis is to discuss and note whether there are score differences, as well as other key differences based on knowledge of the four sites.

Analysis and Discussion

An examination of scores for the four sites reveals differences for both Component III and Component VIII. Illustrated in Table I, Component III, which requires sites to identify topics for quality assurance review, received higher total scores at the sites with large physician staffs (A and B) than did the two sites with small physician staffs (Y and Z).

This result suggests that sites with smaller physician staffs had more difficulty accomplishing Component III. The difference between the two categories becomes more perceptible when one examines the difference in Component III operational scores. The score difference could be attributed to the fact that investigators documented the lack of administrative approach

to implementing quality assurance activities in the small staff sites. On the other hand, the two larger-staffed sites, according to site investigators, emphasized a more systematic administrative approach in dealing with staff physicians and their participation in a program. This view is substantiated when briefly comparing the total scores of each staff size group for Component II (Establishment of Administrative Procedures) in Table II.

TABLE I

COMPONENT III: SELECTION OF TOPICS AND PROVIDERS FOR REVIEW PLANNING AND OPERATION SCORES

Site	Planning	Operation	Total
A	1.00	1.00	1.00
B	1.00	0.88	0.94
Av. Score - High	1.00	0.94	0.97
Y	0.75	0.50	0.63
Z	1.00	0.13	0.57
Av. Score - Low	0.88	0.32	0.60

TABLE II

COMPONENT II: ESTABLISHMENT OF ADMINISTRATIVE PROCEDURES PLANNING AND OPERATION SCORES

Site	Planning	Operation	Total
A	0.65	0.75	0.70
B	0.50	0.50	0.50
Av. Score - High	0.58	0.62	0.60
Y	0.25	0.40	0.33
Z	0.05	0.10	0.08
Av. Score - Low	0.15	0.25	0.20

Component II measures a site's establishment of an administrative structure to develop and implement procedures for operating quality assurance activities. The component requires sites to plan and implement 20 procedures. Site scores are shown in Table II. The two larger staffed sites' total component scores were 0.70 and 0.50, while the two smaller staffed sites' total scores were 0.33 and 0.08. This disparity in scores further suggests and supports the investigators' perception of differences in the administrative approach.

The difference between the two groups' quality assurance programs, as related to physician staff size, becomes more evident when analyzing Component VIII. This component requires sites to plan and implement quality assurance procedures which could acutely affect physicians' activity within a setting. The overall goal of Component VIII is to develop and implement feedback procedures based on decisions made during the review process.

The distribution of scores for the four sample sites is as follows:

TABLE III

COMPONENT VIII: DECISION MAKING AND FEEDBACK PLANNING AND OPERATION SCORES

Site	Planning	Operation	Total
A	0.56	0.67	0.62
B	0.63	0.44	0.54
Av. Score - High	0.60	0.56	0.58
Y	0.37	0.17	0.27
Z	0.13	0.00	0.07
Av. Score - Low	0.25	0.08	0.17

An examination of the average planning scores reveals differences between the groups. The larger staffed sites were more successful in planning feedback procedures to physicians than the two smaller staffed sites. Component VIII operational and total scores draw an even sharper distinction for the sites. The sites with large physician staffs were far more successful in implementing their plans for feedback, while the two smaller staffed settings had negligible feedback activity. Site investigators noted that the larger staffed sites had well-established physician populations with low turnover rates. The two smaller staffed sites were in

the midst of physician changes and recruitment. The difference in both planning and operation scores for Component VIII suggests that stability of physician staff may be a key variable when quality assurance programs advance to the point where systematic feedback of review results are important to the overall success of a program. Further, to score high on Component VIII, as the two larger sites did, requires a program to consciously plan and cultivate physician support. This variable of support, reflected in scores, was documented by investigators. The documentation indicated that the two larger staff sites emphasized the cultivation of physician support as an important element for the entire program. Further, to organize support from the larger staffs required these programs to commit substantial resources to that activity as a part of the quality assurance program. The smaller staffed sites indicated staff support was also critical, although investigators could not document efforts in this area. It is possible that quality assurance programs for large physician staffs require more systematic planning and a more formal approach. It may be that a program with a small physician staff will use less formal administrative activities for implementation, as well as plan less. The scores for these four sites support such a view.

The question of physician staff size can be analyzed further by looking at the difference in scores for specific Component III and VIII procedures. For Component III, three procedures dealing specifically with physicians' role in quality assurance activities were chosen, one planning (B) and two operational (D & E):

Procedure B:	To develop guidelines for the selection of providers for topic review.
Procedure D:	To select providers for review.
Procedure E:	To assure cases reviewed are representative of the total number of topics and providers under review.

Table IV presents site scores on each procedure. There does not seem to be a substantial difference for Procedures B and D. However, in analyzing the Procedure E scores for the four sites, we see a significant difference between the larger and smaller staffed sites. Because this procedure requires sites "to assure cases reviewed are representative of a total number" under review, one would expect differences between the two groups. The scores indicate that the two large staffed sites were successful and the two small staffed sites unsuccessful in implementing Procedure E. It is doubtful whether these scores indicate that it is easier to accomplish this procedure with larger staffs; however, investigators note that the Site A and B programs were much more sensitive and organized in approaching the issues contained in Procedure E. Sites Y and Z, though having much smaller staffs, did not consider the questions involved in Procedure E. The scores seem to indicate that smaller staff sites do not formalize programs to the extent that larger staffed sites do. Again, these scores substantiate the points made earlier regarding the difference in formalizing elements of a quality assurance program for the two groups.

TABLE IV

COMPONENT III: SELECTION OF TOPICS AND PROVIDERS FOR REVIEW
PROCEDURE SCORES

Site	Procedure Scores		
	B	D	E
A	2	2	2
B	2	2	2
Y	1	2	0
Z	2	1	0

Component VIII planning and operational procedures chosen for analysis include the following:

Procedure A: To develop guidelines for timely and acceptable feedback procedures.
Procedure G: To develop guidelines to allow providers to appeal (review) decisions.
Procedure I: To implement timely and acceptable feedback procedures.
Procedure P: To allow providers to appeal presented (review) decisions.

Scores for procedures A, G, I, and P are displayed in Table V.

TABLE V

COMPONENT VIII: DECISION MAKING AND FEEDBACK
PROCEDURE SCORES

Site	Procedure Scores			
	A	G	I	P
A	1	0	1	0
B	2	2	1	1
Y	2	0	0	0
Z	0	0	0	0

Although some differences between groups exist in planning Procedures A and G, only the large staffed sites were relatively successful in accomplishing the operational Procedure I and P. Only one small staffed site received any score besides zero across the four procedures. Again, there appears to be a lack of systematic implementation of physician-oriented procedures in the sites with a small staff size.

Summary

This analysis attempted to explore the issue of physician staff size and its effect on the development and implementation of two quality assurance components and the associated specific procedures. The components and procedures selected for analysis were perceived to be highly related to physician participation in quality assurance programs, and thus related to the question of whether staff size affects systematic operational status of the program.

The preceding analysis, predominantly based on ACQAP Model scores, indicates that when larger physician populations are involved in a review process, program components are planned and operationalized in a more formal manner than at smaller staffed sites. The larger staffed settings with more complicated administrative, communication and personnel interaction patterns may score higher because their complex situation requires more formal planning and documentation of the quality assurance system. It may be that quality assurance programs in smaller staffed settings are more informal and less routine due to the close working relationship providers have with their peers.

The implications of this limited analysis are: (1) If smaller settings are required to formalize their quality assurance activity for regulatory purposes, there may be some inclination by those settings to view such requirements as unnecessary. Effort may be required to motivate personnel to approach quality assurance activity in a more formal manner. (2) Larger settings may require formalized, documented systems to assure that quality assurance activity will routinely measure physician performance. Formalized effort may be required to implement communication systems designed to increase understanding of the purpose, methods, and results of the program.

ACQAP MODEL SCORES ACROSS SURVEY SITES

This section presents and discusses scores that were assigned to 24 survey sites. Scores are based on procedures outlined in the ACQAP Model. Although a total of 27 sites was included in the project, 3 sites did not receive scores since they were classified as research projects whose activity was aimed at only a limited number of procedures contained in the ACQAP Model.

The purpose of examining scores is to assist in defining hypotheses about ambulatory care quality assurance programs. These hypotheses are expected to be relevant to future model refinement and program testing by federal and private groups. The findings of the report are based only on the 24-site sample, which is biased by the fact that sites were selected for their operational status and their agreement to participate. Findings are not intended for further generalization but rather for further investigation.

Table VI, "Summary of Scores by Site," presents the scores for each of the 24 sites. Individual Planning and Operation scores ranged from 0.00, the lowest possible score, to 1.00, the highest possible score. Across all sites, the average Planning score was 0.60; mean Operation score was 0.52 and the mean Total score was 0.56. Table VI forms the basic set of scores discussed in this section.

COMPONENT SCORES ACROSS SITES

The average Total, Planning and Operation scores for each component across all sites offer a means of ranking the nine ACQAP Model components. This type of analysis is useful in determining which components might require special assistance during implementation of quality assurance programs.

Figure 7, "Ranked Average Component Score Across All Sites," represents graphically the ranks of components. In terms of component Planning scores, Component IX (Evaluation, Restudy, and Further Action) and VIII (Decision Making and Feedback) rank lowest with Component VII (Review Procedures) and Component II (Establishment of Administrative Procedures) also scoring low. Operation scores indicate that Component IX and VIII again are lowest. However, Component V (Identification of Data Elements and Sources) and Component IV (Criteria Development) also scored low. Across all sites the components that scored highest for Planning Score were Component V (Identification of Data Elements and Scores) and Component III (Selection of Topics and Providers for Review). The components that scored highest on Operation Score were again III, but also VI (Data Collection and Processing).

The relationship between Planning and Operation scores is illustrated in Figure 8, "Average Scores for Each Component Across All Sites." Since Component I has no planning procedures, no relationship between Planning

Site component planning score
Site component operation score
Site component total score

TABLE VI

SUMMARY OF SCORES BY SITE

Average component planning score across sites
Average component operation score across sites
Average component total score across sites

Component	Site / Score	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average of Component Scores	Component
I	Plan Operation Average	X .83 .83	X .50 .50	X .83 .83	X .54 .54	X .54 .54	X .71 .71	X .54 .54	X .67 .67	X .42 .42	X .50 .50	X .46 .46	X .54 .54	X .63 .63	X .42 .42	X .67 .67	X .75 .75	X .83 .83	X .75 .75	X .46 .46	X .25 .25	X .25 .25	X .67 .67	X .75 .75	X .67 .67	X .59 .59	I
II	Plan Operation Average	.65 .75 .70	.50 .50 .50	.65 .80 .73	.40 .40 .40	.40 .50 .45	.60 .40 .50	.50 .45 .48	.45 .65 .55	.30 .40 .35	.40 .40 .40	.20 .30 .25	.40 .50 .45	.50 .56 .53	.25 .40 .33	.65 .60 .63	.60 .65 .63	.75 .72 .74	.75 .75 .75	.50 .55 .53	.45 .30 .37	.05 .10 .08	.55 .50 .53	.75 .75 .75	.55 .65 .60	.49 .52 .51	II
III	Plan Operation Average	1.0 1.0 1.0	1.0 .88 .94	1.0 1.0 1.0	.75 .67 .71	.50 .88 .69	.75 .67 .71	1.0 .75 .88	1.0 .88 .94	.50 .75 .63	1.0 .88 .94	.00 .63 .32	1.0 .88 .94	.50 .88 .69	.75 .50 .63	1.0 .67 .84	1.0 .88 .94	1.0 1.0 1.0	1.0 .75 .88	1.0 .50 .75	.50 .38 .44	1.0 .13 .57	.75 .88 .82	1.0 .88 .94	1.0 1.0 1.0	.83 .76 .80	III
IV	Plan Operation Average	.25 .71 .48	.88 .57 .73	1.0 .78 .89	.38 .43 .41	1.0 .14 .57	.63 .57 .60	.50 .57 .54	.75 .43 .59	.13 .43 .28	.63 .36 .49	.25 .29 .27	.50 .57 .54	1.0 .78 .89	.50 .43 .47	1.0 .43 .72	.00 .00 .00	1.0 .43 .72	1.0 .43 .72	.50 .29 .39	.13 .29 .21	.00 .00 .00	.67 .64 .66	1.0 .78 .89	1.0 .57 .79	.65 .47 .54	IV
V	Plan Operation Average	1.0 .33 .67	1.0 .67 .87	1.0 .67 .84	.75 .50 .63	1.0 .33 .67	1.0 .33 .66	1.0 .33 .67	1.0 .67 .84	1.0 .33 .67	1.0 .33 .67	1.0 .33 .67	1.0 .33 .67	1.0 .33 .67	1.0 .33 .67	1.0 .50 .75	1.0 .67 .84	1.0 .83 .92	1.0 .67 .84	1.0 .33 .67	.50 .33 .42	.50 .00 .25	1.0 .33 .67	1.0 .67 .84	1.0 .67 .84	.94 .42 .69	V
VI	Plan Operation Average	.67 .80 .74	.83 .80 .82	1.0 .70 .85	.67 .70 .69	.83 .60 .72	.67 .80 .73	1.0 .80 .90	1.0 .80 .90	.50 .60 .55	.67 .60 .64	.50 .40 .45	.43 .70 .57	1.0 .80 .90	.50 .50 .50	.50 .90 .70	1.0 .80 .90	1.0 .90 .95	1.0 .90 .95	.50 .50 .50	.33 .50 .42	.50 .10 .30	1.0 .90 .95	1.0 .80 .90	1.0 .80 .90	.75 .70 .73	VI
VII	Plan Operation Average	.58 .70 .64	.42 .60 .51	1.0 .70 .85	.08 .60 .34	.42 .60 .51	.25 .60 .43	.50 .60 .55	.33 .40 .37	.25 .50 .38	.25 .40 .33	.50 .20 .35	.58 .70 .64	.42 .50 .46	.25 .30 .27	.75 .80 .78	.67 .90 .79	.83 .90 .87	.75 .90 .88	.50 .50 .50	.42 .40 .41	.25 .10 .18	.75 .70 .73	.58 .50 .54	.42 .50 .46	.49 .57 .53	VII
VIII	Plan Operation Average	.56 .67 .62	.63 .44 .54	.38 .44 .41	.19 .17 .18	.25 .61 .43	.38 .50 .44	.31 .44 .37	.56 .44 .50	.13 .17 .15	.12 .06 .09	.38 .28 .33	.13 .28 .20	.19 .33 .26	.37 .17 .27	.19 .83 .51	.38 .78 .58	.87 .83 .85	.75 .72 .74	.50 .44 .47	.00 .17 .09	.13 .00 .07	.38 .44 .41	.50 .50 .50	.50 .44 .47	.37 .42 .40	VIII
IX	Plan Operation Average	.67 .40 .54	.25 .30 .27	.88 .50 .69	.25 .10 .18	.25 .20 .23	.13 .40 .27	.00 .10 .05	.25 .40 .33	.13 .20 .17	.13 .10 .12	.13 .10 .12	.25 .20 .23	.37 .20 .29	.00 .10 .05	.38 .30 .34	.13 .10 .12	.50 .50 .50	.25 .30 .27	.13 .20 .17	.13 .00 .07	.00 .00 .00	.38 .30 .34	.67 .30 .49	.50 .50 .50	.28 .24 .26	IX
	Average of Site Scores	.67 .69 .68	.68 .58 .63	.86 .71 .78	.43 .46 .45	.58 .49 .54	.55 .55 .55	.61 .51 .56	.66 .59 .63	.37 .42 .40	.52 .40 .46	.37 .33 .35	.54 .52 .53	.63 .55 .59	.45 .35 .40	.68 .63 .66	.60 .61 .62	.86 .77 .82	.81 .68 .75	.57 .41 .49	.31 .29 .30	.30 .08 .19	.68 .59 .64	.81 .65 .73	.75 .64 .69	.60 .52 .56	

Site planning score across components
Site operation score across components
Site total score across components

I Development of Approach

II Establishment of Administrative Procedures

III Selection of Topics/Providers for Review

IV Criteria Development

V Identification of Data Elements and Sources

VI Data Collection and Processing

VII Review Procedures

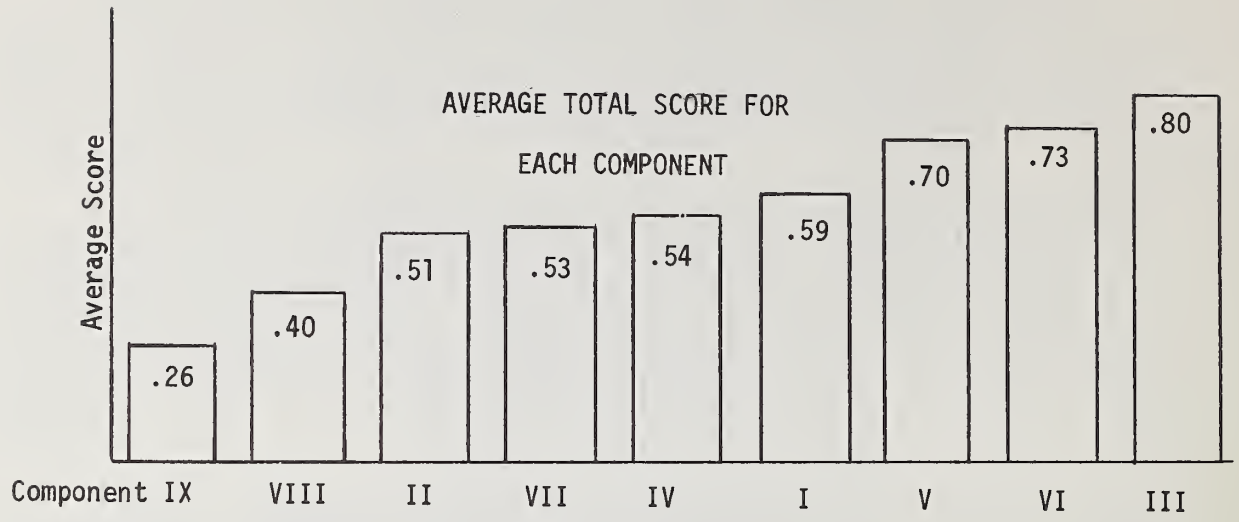
VIII Decision Making and Feedback

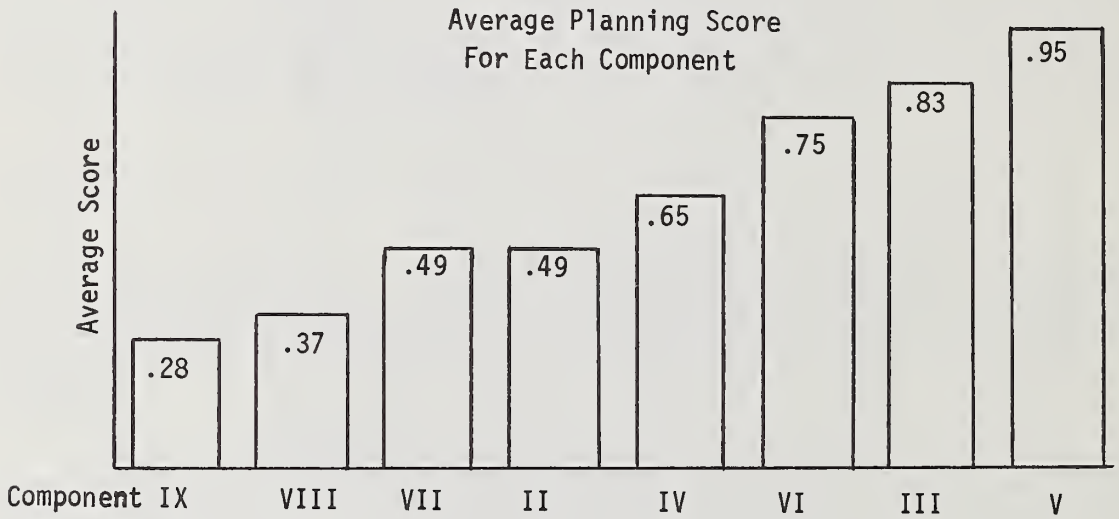
IX Evaluation, Restudy, and Further Action

Average total planning score across sites
Average total operation score across sites
Average total score across sites

FIGURE 7

RANKED AVERAGE COMPONENT SCORE ACROSS ALL SITES





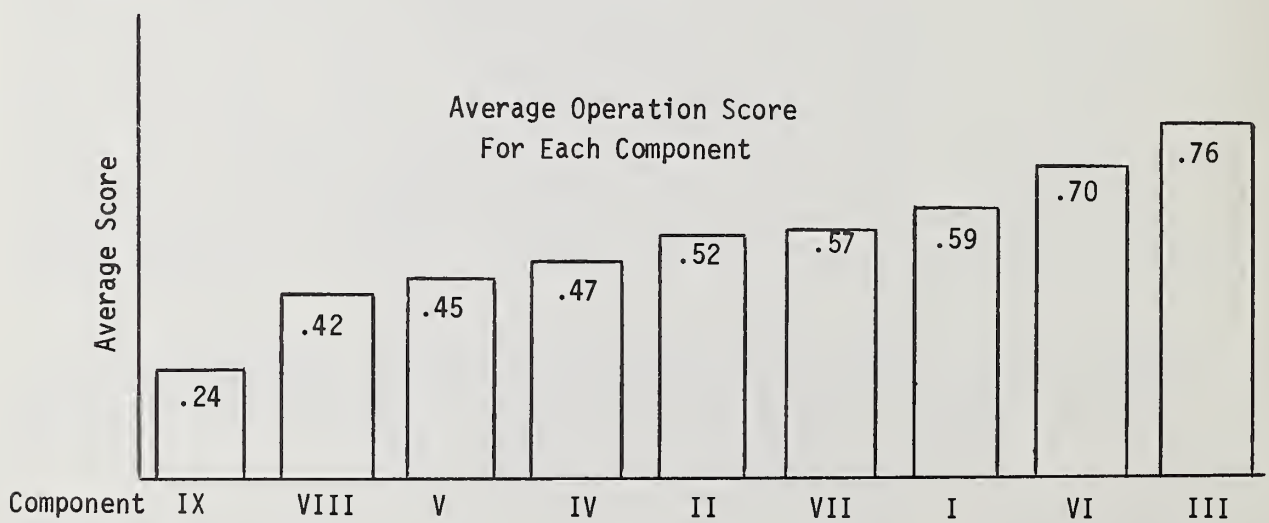
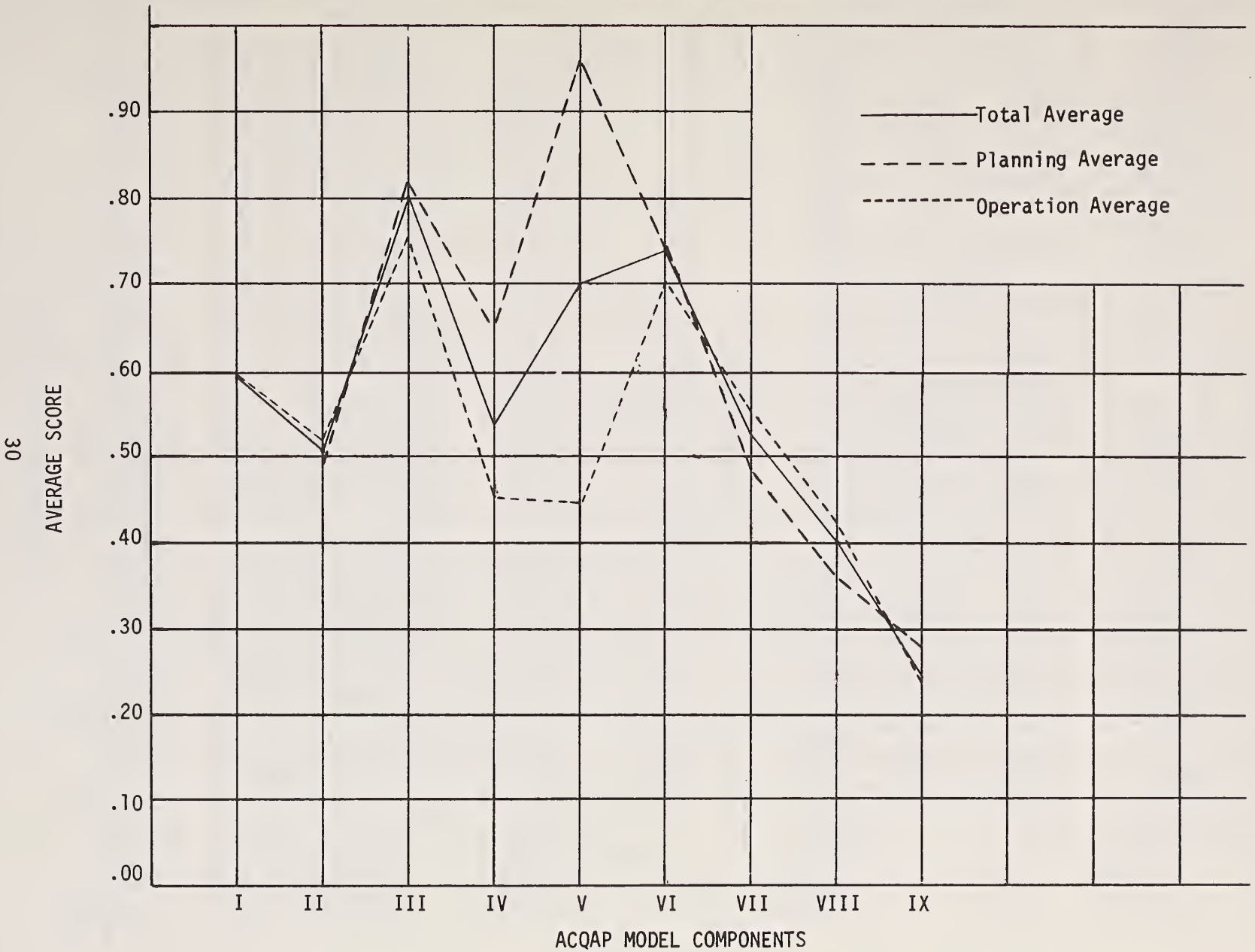


FIGURE 8

AVERAGE SCORES FOR EACH COMPONENT ACROSS ALL SITES



and Operation scores is shown. It is noted that planning procedures scored higher than operation procedures for Components III thru VI; operation procedures scored higher for Components VII thru IX.

Generally, there appears to be a close relationship between Planning and Operation scores except for Component V (Identification of Data Elements and Sources). Component V shows the largest Planning and Operation score discrepancy of all components. Across all sites the average component V Planning score is 0.95 while the average Operation score is only 0.45.

The reasons for the disparity in Component V may be related to the ease with which the planning procedures are achieved, thus resulting in a high Planning score, while operation activities are not as easily achieved; hence a low score results. Component V planning procedures are:

a. To develop guidelines for the selection of data elements and
b. To develop guidelines for determining the data sources from which data elements can be selected.

Determining data elements and sources is a relatively easy process and is an obvious necessity in conducting a quality assurance program, thus it generally achieves a high score.

However, implementation of these objectives appears to be more difficult. The Component V operational procedures are:

c. To select the data elements from appropriate sources
d. To determine the reliability of data sources
e. To determine the validity of the data sources

According to the Procedures scores discussed in the next section Procedure c) is achieved more often than either d) or e); therefore, d) and e) tend to bring down the Operational score for the component, resulting in the low Operational score and reflected finally in the low relationship between planning and operation.

In conclusion, it appears from average component scores that the ambulatory care quality assurance programs surveyed planned most in areas focusing on "Identification of Data Elements and Sources" and "Selection of Topics and Providers for Review." "Selection of Topics and Providers for Review" was then implemented most along with "Data Collection and Processing." However, although data are being collected and processed, it appears that lack of checks of data reliability and validity caused a low Operation score for "Identification of Data Elements and Sources." "Criteria Development" also scored low. The lowest Planning and Operation scores were on "Decision Making and Feedback" and "Evaluation, Restudy, and Further Action."

Data collection and processing consume a major part of the technical resources in many quality assurance programs. Low operation scores on procedures to obtain valid and reliable information as well as criteria

development and relatively high planning scores on data collection and processing procedures suggest that emphasis in these two areas should be reversed in many of the sites included in the survey. If the scoring for this sample were to hold for a larger representative sample of ambulatory quality assurance programs it would suggest that developmental priorities should be shifted from data collection and processing to improvement of criteria development and the basic medical records and the data sources used for review and assessment of the quality of ambulatory medical care.

PROCEDURE SCORES ACROSS SITES

To assist the reader in acquiring a more detailed understanding of the scores received on procedures within components, a ranking scheme similar to the one outlined in the preceding section is presented. Two sites were excluded from analysis because of late arrival of data. As the highest possible score on a procedure is two points, across the 22 sites the highest possible total score for each procedure is 44 points (e.g., 22 x 2). When considering points scored on planning and operation procedures combined, Figure 9 illustrates that very few procedures (seven) scored the total possible 44 points. Overall, on the 99 procedures contained in the model, only about half the total possible points were scored.

FIGURE 9

NUMBER OF POINTS SCORED ON THE 99 PROCEDURES IN THE ACQAP MODEL

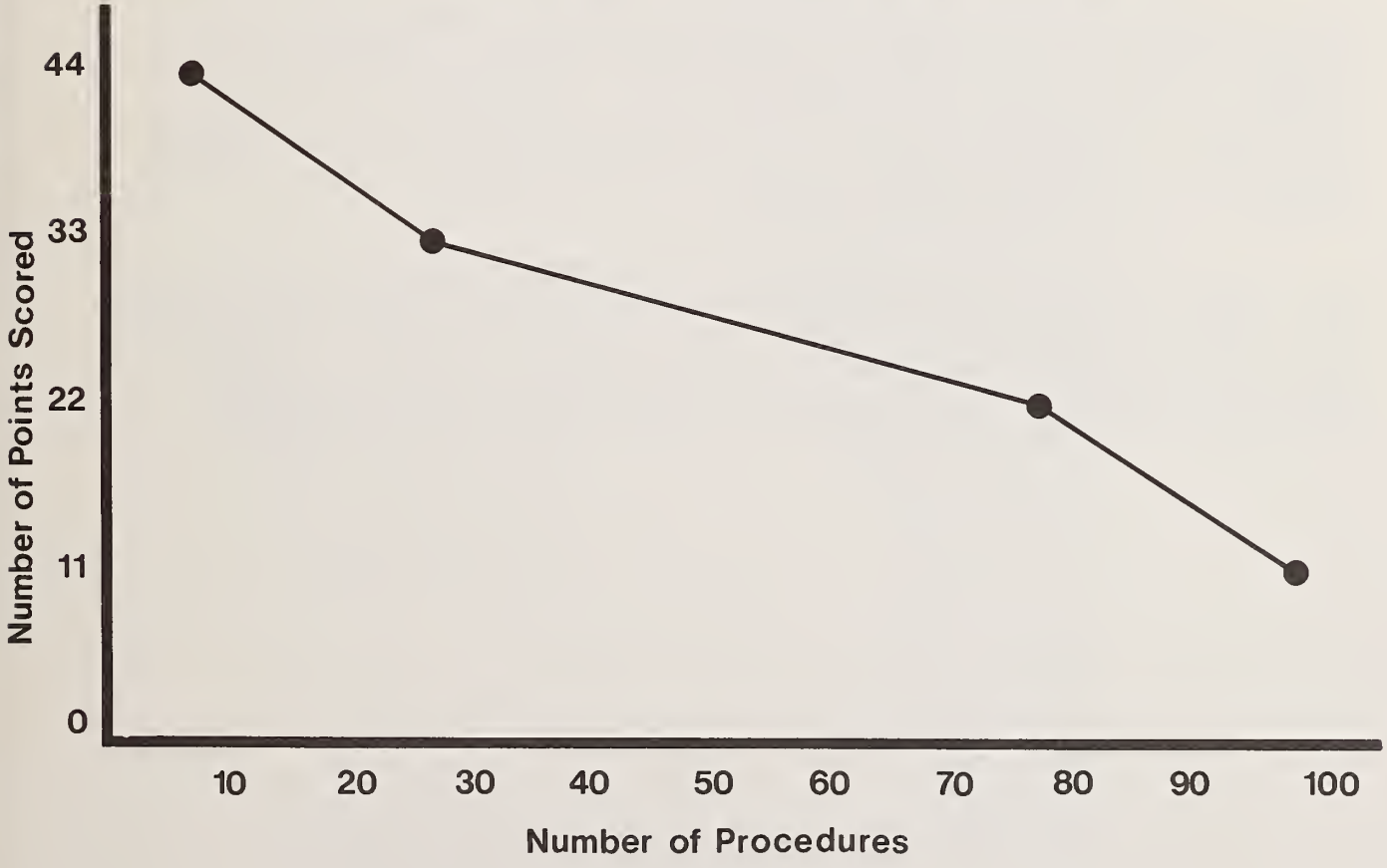


Figure 10 presents the ranked planning procedures. The ACQAP Model contains a total of 39 planning procedures. Only 11 procedures received at least 33 of the 44 total possible points. Twenty-three planning procedures received 22 or less of the 44 total possible points; these low scoring planning procedures are listed in Figure 11. The ACQAP Model contains a total of 60 operation procedures; they are ranked in Figure 12. Only 14 procedures received at least 33 of the 44 total possible points. Twenty-seven procedures received 22 or less of the 44 total possible points; those low scoring operation procedures are listed in Figure 11. It is hypothesized that the low scoring procedures listed in Figure 11 should receive more attention during program planning and operation.

As discussed previously, many of the low scoring procedures focus on determining reliability, accuracy and consistency of data and review decisions as well as the degree to which the data and review decisions are valid (e.g., based on data that accurately reflect physician-patient encounters). Feedback and restudy also contained many low-scoring procedures. These two components measure intervention activity and resulting improvement. The model itself is limited since it does not directly measure cause and effect, however, from the low scoring procedures it might be hypothesized that one reason for lack of feedback and restudy might be lack of confidence in the data presented for review and therefore, a reluctance to contact physicians and feed back the results of a medical review. More attention to determining data accuracy may increase likelihood of frequent feedback and restudy designed to measure impact on change in physician behavior.

Low scores for the decision making and feedback component might also be due to inherent reluctance to confront peer groups or individuals with evidence of substandard care or because little is known about effective methods to modify group and individual behavior. Because of the relatively consistent low scores across all sites for the decision making and feedback component, most programs could be characterized as review programs as opposed to quality assurance programs.

If low scores for the decision making and intervention component were found in a large and representative sample of quality assurance programs this characterization might well typify the state of the art in ambulatory care quality assurance and account for the investigator observation that most of the programs in this survey were viewed from within the practice as projects, as opposed to routine and essential functions of the group.

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FIGURE 10

TOTAL POINTS SCORED PER PLANNING PROCEDURE

(RANKED FROM LOWEST TO HIGHEST)

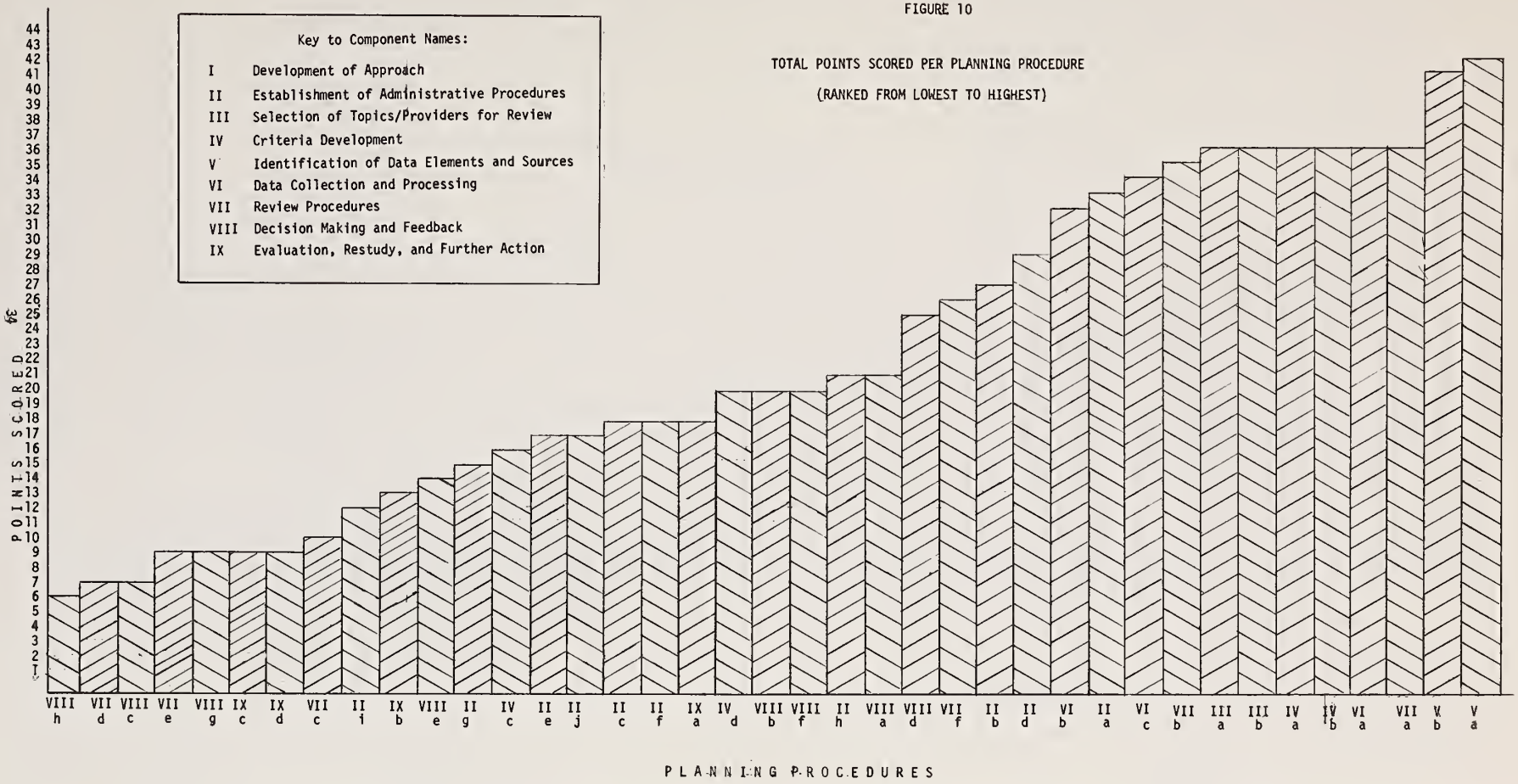


FIGURE 11

LOW SCORING ACQAP MODEL PROCEDURES

Across sites, the procedures listed received less than half (less than 22 points) the toal 44 possible points

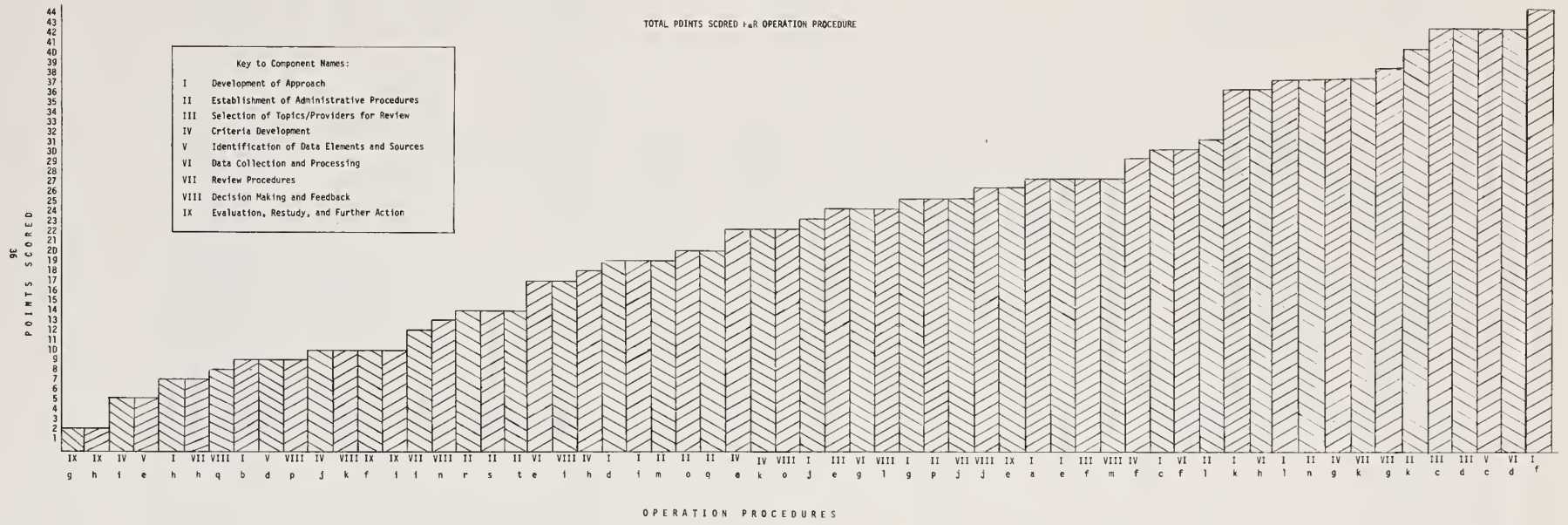
Planning Procedures

Component	Procedure	Description
II		To develop guidelines for:
	c	Assuring staff motivation and participation
	e	Maintaining confidentiality of information
	f	Defining communication needs
	g	Budgetary allocation
	h	Determining the degree to which quality assurance goals are being achieved
	i	Assessing and revising quality assurance methodology and procedures as required
	j	Monitoring Components 3 to 9
IV	b	Further action and/or restudy based on the extent to which the problem was solved
	c	Performance levels
	d	Developing performance levels
VII	c	Assuring inter/intra reliability of review process
	d	Controlling review bias
	e	Requesting additional information for review
VIII	a	Timely and acceptable feedback procedures
	b	Decision making based on review process and output
	c	Requesting additional information for decision making
	e	Assuring that positive results are presented to providers
	f	Assuring that negative results are presented to providers
	g	Allowing providers to appeal decisions
	h	Allowing providers to appeal feedback and/or action
IX	a	Determining the extent to which the problem was solved by corrective action
	c	Revising the methodology and procedures for further action and/or restudy as needed
	d	Assuring the appropriate system revision, based on evaluation results, is conducted

Operation Procedures

Component	Procedure	Description
I	b	To visit other research projects and operational programs
	d	To solicit experienced consultants/staff to assist in developmental work
	h	To define quality in relation to these goals and objectives
	i	To establish budget requirements and budget constraints
II	m	To assure staff motivation and participation
	o	To maintain confidentiality of information
	q	To implement cost control procedures
	r	To determine the degree to which quality assurance goals are being achieved
	s	To pilot test, assess and revise quality assurance methodology and procedures
	t	To implement a monitoring system for Components 3 to 9
IV	h	To assure that criteria and performance levels are presented in an understandable manner to providers
	i	To determine the validity of the criteria and performance levels
	j	To determine the degree to which review decisions based on criteria and performance levels will be reliable
V	d	To determine the reliability of the data source(s)
	e	To determine the validity of the data source(s)
VI	e	To assure that the data collection and processing procedures are reliable
VII	h	To assure inter/intra reliability of review process
	i	To assure reviewer's requests for additional information for review purposes
VIII	i	To implement timely and acceptable feedback procedures
	k	To assure decision makers request for additional iinformation
	n	To assure that positive findings are presented to providers
	p	To allow providers to appeal presented decisions
	q	To allow providers to appeal feedback and/or action
IX	f	To implement further action and/or restudy based on the extent to which the problem was solved
	g	To insure reliability of further action and/or restudy
	h	To insure validity of further action and/or restudy
	i	To assure that appropriate system revision, based on evaluation results, is ongoing

FIGURE 12


TOTAL POINTS SCORED FOR OPERATION PROCEDURE
Key to Component Names:
I Development of Approach
II Establishment of Administrative Procedures
III Selection of Topics/Providers for Review
IV Criteria Development
V Identification of Data Elements and Sources
VI Data Collection and Processing
VII Review Procedures
VIII Decision Making and Feedback
IX Evaluation, Restudy, and Further Action
POINTS SCORED
OPERATION PROCEDURES

SCORES BY SETTING AND QUALITY ASSURANCE PROGRAM FACTORS

To formulate hypotheses regarding the factors within ambulatory quality assurance settings and programs that may influence ability to score higher on the ACQAP Model procedures, 15 categories (within 6 factors) were selected for investigation. Figure 13 presents the factors and categories; definitions were previously presented in Figure 3.

FIGURE 13

SETTING AND QUALITY ASSURANCE PROGRAM FACTORS AND CATEGORIES

Factor	Categories
1. Type of Group Practice	Single Specialty General Practice Multispecialty
2. Type of Revenue Source to Delivery System	Fee for Service Prepaid Both FFS and PP
3. Length of Quality Assurance Program Activity	0-24 Months 25 Months and More
4. Type of Quality Assurance Program Support	Volunteer Budgeted
5. Type of Quality Assurance Review	Internal External
6. Type of Data Source for Quality Assurance Program	Claim Form Chronological Medical Record Problem Oriented Medical Record

It was decided a priori to group each site into either a high range (e.g., site total score was above 0.50) or a low range (e.g., site total score was 0.50 or below). Table VII displays the percent of high range sites per category and the difference in percentage points between categories.

Quality review programs which involve single specialty providers appear to score high when compared to those with General Practitioners and Multispecialty providers. No explicit reasons were found to explain the difference, however, it could be hypothesized that topic identification and criteria development may be more easily achieved due to a more focused

TABLE VII

COMPARISON OF HIGH RANGE AND LOW RANGE SITES BY CATEGORY

FACTOR	CATEGORY	NO. OF HIGH RANGE SITES PER CATEGORY	NO. POSSIBLE SITES IN CATEGORY	PERCENT OF HIGH RANGE SITES PER CATEGORY	DIFFERENCE IN PERCENTAGE POINTS BETWEEN CATEGORIES
1					
Type of Group Practice	Single Specialty	3	3	1.00%	
	General Practice	1	4	.25%	75
	Multispecialty	4	10	.40%	60
2					
Type of Revenue Source to Delivery System	Fee for Service	2	3	.67%	
	Prepaid	6	11	.55%	12
	Both	2	4	.50%	17
3					
Length of Q.A.* Program Activity	0-24 Months	6	12	.50%	
	25 Months or More	9	11	.82%	32
4					
Type of Q.A. Program Support	Volunteer	3	10	.30%	
	Budgeted	12	13	.92%	62
5					
Type of Q.A. Review	Internal	12	17	.71%	
	External	3	5	.60%	11
6					
Type of Data Source for Q.A. Program	Claim Form	3	3	1.00%	
	CMR**	4	7	.57%	43
	POMR***	4	9	.44%	56

*Q.A. - Quality Assurance
**CMR - Chronological Medical Record
***POMR - Problem Oriented Medical Record

medical area. It may be that single specialty providers more easily reach consensus on criteria, thus allowing the subsequent activities (e.g., data collection, review, and feedback) to be implemented in a more defined and systematic manner. This finding may have implications for the design of quality assurance systems involving multispecialties. For example, systems may be more successful if topics and criteria are selected on a departmental basis.

Review programs which were budgeted scored higher than those that relied solely on volunteer support. It appears that setting aside funds (whether from internal or external sources) is important to a site's ability to score higher on the ACQAP Model.

The third category that appears to be related to high scores is the use of a claim form as a data source. Claim forms scored higher than both chronological medical records and problem-oriented medical records. This finding in no way implies that claim forms do or do not measure quality of care better than a chronological or a problem-oriented medical record. It does appear, however, that the level and consistency of activity is higher in systems using a claim form as a data source. This finding might be explained by the fact that the three settings that employed claim forms work in conjunction with fiscal intermediaries. As a result of their involvement with claims processing, these systems are well acquainted with the use of data and the systems approach to program development and management. Therefore, when the quality assurance program was developed, the responsible personnel may have dealt with the task in a more planned, systematic, documented, and specified manner. Since the systems-oriented ACQAP Model and scoring techniques measure such things as extent of planning, data availability, monitoring of the data system, and extent of feedback (including payment denial), claims systems may have been more oriented to these characteristics.

The interaction among the higher scoring categories is illustrated in Figures H, J, and T of Appendix V. The major interaction which seems apparent is that all claim form data source systems were budgeted also. Due to the limited analysis, it is unclear whether the fact that the claims-based systems were also budgeted accounts for the higher scores.

FINDINGS AND RECOMMENDATIONS

Summarized below are the major findings of the Ambulatory Care Quality Assurance Project survey. Findings focus on future development and use of the ACQAP Model and characteristics of programs as measured by the Model. The analysis techniques employed do not allow for predictive or probability statements or for generalization beyond the sample of 27 sites. Thus, findings can be interpreted as recommendations to be verified during program development and testing.

In the ambulatory care quality assurance programs surveyed, it appears that:

1. Application of the ACQAP Model substantiated initial content validity by means of systematic comparison of model goals and procedures in ambulatory care quality assurance programs. It was noted, however, that continued refinement of the model is needed. For example, the model is not able to determine the existence of the following elements.

    a. In planning quality review activities most programs anticipated a consistent activity level, usually in terms of number of topics to be reviewed, amount of data to be collected and physician time to be allocated to the program. Once programs became operational, however, fluctuations in the amount of quality assurance activity usually occurred over long periods (six to twenty-four months). This effect appears to be directly related to the service demands placed on the resources of the medical practice. Unexpected fluctuation in quality assurance activity was also related to the low priority of quality assurance programs in many of the practices. Quality review was often viewed as a function that could be reduced or completely stopped for a time without having effect on the quality of services delivered. The current model does not measure this type of activity or fluctuations which may occur.

    b. Goals among programs varied considerably. Cost and utilization control was the primary goal in some programs, others established improved quality of medical care as the most important goal. Some programs were conceived as research projects with methodologic development and improvement as the primary focus. Others were interested in establishing an ongoing program as part of the operation of their group practice. The current model fails to distinguish among types of goals and there is no mechanism for measuring the influence of goal conflict on the success of the program.

c. Realistic budgeting, development of appropriate organizational structure and design of effective management plans within the organization were important to quality assurance program success. The model is not equipped to provide data needed to make qualitative assessment of administrative functions.

d. Professional and administrative staff involvement and commitment in the planning process and operational phases appear to be essential for program success. The model does not facilitate assessment of staff involvement, especially in the planning phase where documented plans are the only source of assessment information.

e. Group practices with the most success in developing quality assurance programs were those that had reached fiscal and organizational stability before the review program was implemented. The model currently does not measure stability of the delivery setting.

f. Successful quality assurance program operations usually assigned a person to direct the program and thereby increased staff commitment to the program and consistency and continuity of program activity.

g. Many of the quality assurance programs appear to be viewed as projects rather than ongoing functions of the group practice. This suggests that ambulatory care quality assurance within many of the practices is only at the initial stage of evolving to a routine function.

2. Model refinement must continue to focus on revision of goals, component names, and procedures. There appears to be a need to examine (a) word usage, clarity, and specificity and (b) the importance of each procedure to a total program and in relation to other procedures. Empirical methods, rather than normative, must be developed to test and define the minimum set of procedures to be included in the model.

3. Model refinement must be aimed at developing methods for use of the model as an assessment tool; to measure not only whether a program has initiated a procedure but how <u>well</u> the procedure has been accomplished.

4. Currently application of the ACQAP Model has potential in three areas; first as a guide to system design and implementation; second, as a tool for program assessment and third, to assist in studies aimed at analyzing factors within programs.

5. Volume II, "Program Descriptions" illustrates that a wide diversity was to be found across the quality assurance programs surveyed. The delivery settings and quality assurance methods tailored to these settings varied substantially. Currently there is no consensus on the most efficient, feasible, and productive quality review and assurance methods.

6. Program scores on ACQAP Model Components indicate that:

   a. There appears to be a close relationship between planning and operation scores except for Component V (Identification of Data Elements and Sources). Across all sites the average Component V planning score is 0.95 while the average operation score is only 0.45.

   b. In terms of component planning scores, Component IX (Evaluation, Restudy, and Further Action) and VIII (Decision Making and Feedback) rank lowest with Component VII (Review Procedures) and Component II (Establishment of Administrative Procedures) also scoring low.

      Operation scores indicate that Component IX and VIII again are lowest. However, Component V (Identification of Data Elements and Sources) and Component IV (Criteria Development) also scored low.

      Across all sites the components which scored highest for Planning Score were Component V (Identification of Data Elements and Scores) and Component III (Selection of Topics and Providers for Review). The components which scored highest on Operation Score were again III, but also VI (Data Collection and Processing).

   c. Programs surveyed planned most in areas focusing on "Identification of Data Elements and Sources" and "Selection of Topics and Providers for Review." "Selection of Topics and Providers for Review" was then implemented most along with "Data Collection and Processing." However, although data were being collected and processed, it appears that lack of checks of data reliability and validity caused a low operation score for "Identification of Data Elements and Sources." "Criteria Development" also scored low.

      Data collection and processing consume a major part of the technical resources in many quality assurance programs. Low operation scores on procedures to obtain valid and reliable information as well as develop criteria, and relatively high planning scores on data collection and processing procedures suggest that emphasis in these areas should be reversed in many of the sites included in the survey. If the scoring for this sample were to hold for a larger representative sample of ambulatory quality assurance programs it would suggest that developmental priorities be shifted from data collection and processing to improvement of criteria development and the basic medical records and other data sources used for review and assessment of the quality of ambulatory medical care.

7. Scores on ACQAP Model procedures indicate that:

   a. Across all sites, on the 99 procedures contained in the model, only about half the total possible points were scored.

   b. During program planning and operation, special emphasis should be placed on the low scoring procedures listed in Figure 11 "Low Scoring ACQAP Model Procedures" of this report.

   c. Many of the low scoring procedures focus on determining reliability or consistency of data accuracy and review decisions as well as the degree to which the data and review decisions are valid (i.e., based on data that accurately reflect physician-patient encounters). Feedback and restudy also contained many low scoring procedures. These two components measure intervention activity and resulting improvement. The model itself is limited since it does not directly measure cause and effect, however it may be hypothesized from the low scores in procedures that one reason for lack of feedback and restudy might be lack of confidence in the data presented for review and, therefore, a reluctance to contact physicians and feed back the results of a medical review. More attention to determining data accuracy may increase likelihood of frequent feedback and restudy designed to measure impact or change in physician behavior.

      Low scores for the decision making and feedback component might also be due to an inherent reluctance to confront peer groups or individuals with evidence of substandard care due to lack of knowledge regarding effective intervention methods of modifying group and individual behavior.

8. Quality assurance programs used by groups of single specialty providers (other than general practitioners) appeared to score high when compared to those of general practitioners and multispecialty providers. This finding may have implications for the design of quality assurance programs involving multispecialties. For example, programs may be more successful if topics and criteria are selected on a departmental basis.

9. Quality assurance programs that were budgeted scored higher than those that relied solely on volunteer support. It appears that setting aside program funds (whether from internal or external sources) is important to a site's ability to score higher on the ACQAP model.

Presented above are the major findings of the ambulatory care quality assurance survey. To assure accurate interpretation, the findings should be read in conjunction with the remainder of this volume and the other two volumes reporting the survey.

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APPENDIX I

Ambulatory Care Quality Assurance Project Method

This appendix details the methods used to collect the information contained in the project report. It provides a step by step description of the procedures broken down into seven specific tasks:

A. Development of the Data Collection Instrument (DCI)
B. Survey of Potential Sites
C. Participant Selection
D. Data Collection
E. Data Compilation
F. Development and Application of an Ambulatory Care Quality Assurance Model to be used in Assessing Site Activities
G. Development and Application of Scoring Procedures

The major purpose of this investigation was to describe methods of quality assurance review and to develop major models and strategies for ambulatory care quality assurance evaluation. Prior to the development of tasks A and B, HCMS staff held several meetings to interpret the intent of the contract and had several exchanges with the Project Office at the Bureau of Quality Assurance (BQA), Department of Health, Education and Welfare, to discuss specific directions the study might take.

DEVELOPMENT OF THE DATA COLLECTION INSTRUMENT (DCI)

In addressing the goals and objectives for this study, it was first necessary to identify areas where data would have to be collected, then to determine the appropriate sources and types of information for investigation. To approach this task systematically, an open-ended, structured questionnaire was developed from an extensive review of the current quality assurance literature and from Health Care Management Systems (HCMS) staff input, based on an outline of project parameters (Appendix II). This first draft of the DCI was designed to order logically and to classify data topics into appropriate categories for collection. After two revisions based on further in-house discussions, the DCI was forwarded to BQA for comment. Following BQA input, the second major draft was produced.

At this stage, the DCI was pilot tested in an operational quality assurance setting during an on-site visit. As a result of the pilot test and the refinement of focus, there were two major revisions:

1. Division of the questionnaire into two components:
    a. Information about the delivery systems
    b. Information about the quality assurance program

2. Questions were rearranged to produce more continuity during the interview schedule. The final revision of the DCI was based on another intensive review of the quality assurance literature to insure that all applicable issues and questions were included. A final review of the schedule by the project advisory board was conducted.

These procedures resulted in a 37-page, 226-item, open-end questionnaire divided into two major sections, the Delivery System (8 pages) and the Quality Review Program (29 pages). All parts of the DCI were not meant to be applicable to all sites. However, it was necessary to include all possible categories which might contain data on quality review activities. Essentially, the DCI was used as a guide for data collection and to focus the direction of the site interviews. The questions used in the DCI are listed in Appendix II.

SURVEY OF POTENTIAL SITES

In constructing a base population from which a selected sample for investigation might be generated, an extensive list of sites engaged in some form of ambulatory quality review activities was constructed. There was no comprehensive list of sites involved in quality review, so the list came from a variety of sources:

1. A list of persons active in some facet of quality assurance or utilization review, initiated and built on through telephone and correspondence
2. Two major research projects in quality assurance visited to discuss possible participants, on the basis of their knowledge of the field
3. A review of quality assurance literature to create a list of ambulatory quality assurance programs in operation
4. A review of a 31-page listing of ambulatory delivery systems having some type of computer involvement in their medical record system
5. A review of federally supported ambulatory quality assurance programs supported by Social Rehabilitation Service, Bureau of Quality Assurance, National Center for Health Services Research, and Community Health Services
6. A review of ambulatory quality assurance programs supported by private foundation funding
7. Congressional hearings (Competition in Health Services Market, Subcommittee on Antitrusts and Monopoly, Committee of the Judiciary, U.S. Senate) which listed approximately 100 ambulatory settings

From these sources, 65 sites involved in ongoing ambulatory quality assurance activities were identified. All sites were directly contacted with letters of introduction designed to ascertain the current status of their quality review activities, their willingness to participate in the study and the suitability of their program for a site visit by the research team.

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SITE SELECTION

From the initial 65 contacts, a total of 45 sites responded. Twelve of the sites responding indicated they were unwilling to participate in the study. Twenty-four indicated a strong interest; these and nine others who gave tentatively positive responses were contacted later by letter or telephone and given a more detailed description of the project. At this time, each site was asked to send any documentation available describing the delivery system, quality review activities and other pertinent information.

After reviewing the information obtained from the sites, 27 sites were selected for possible site visits according to the following criteria:

1. Only sites with ambulatory quality review activities in full operation would be visited
2. Sites had to provide at least some initial documentation about the activities
3. Personnel on site should show a high level of interest and willingness to participate in the time consuming site visit and data collection procedures; it was also necessary to discuss a mutually convenient time for the site visit
4. Only sites within the continental boundaries of the United States could be visited
5. Sites must be capable of classification by the majority of selected factors for analysis

The 27 sites remaining after applying the above criteria were further classified to provide a listing of sites representative of:

a. Ambulatory Care Settings
b. Diverse Geographical Locations
c. Types of Quality Review Activity

The participants are listed in the beginning of this volume.

DATA COLLECTION

The data collection procedures employed in this investigation involved two separate but related styles. The first of these was the Pre-Visit

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Orientation (PVO). The purpose of the PVO was to inform the site visit team of priorities for data collection, and to give direction to the actual interviews on site. From this initial documentation it was possible to know approximately what information was needed to complete the DCI. The PVO dealt with two phases of the data collection process: the selection of a particular site via the procedures described above, which yielded certain descriptive information, and more complete documentation prior to the actual site visit.

The PVO was designed to provide a systematic and time saving approach to the data collection process. These pre-visit activities can be generally categorized as follows:

1. Selection of sites for possible inclusion in the study
2. Introductory communication
3. Request for initial information to determine participation status
4. Receipt of initial information
5. Request for detailed information to initially compile DCI (in some instances, Section I of the DCI was sent to the site for completion)
6. Receipt of detailed information which was subsequently recorded in the DCI
7. Creation of deficiency list based on information received
8. Request for additional information (if available) and arrangement of the site visit and interviews

These procedures varied somewhat for each site: some sites provided extensive and comprehensive documentation about both the delivery system and their quality assurance activities, while others were able to provide only general information in these areas. As a consequence, the amount of data collected on site varied with the amount of information obtained during the PVO.

Once all PVO data were collected and a site visit scheduled, the visit team reviewed all information available on the site prior to the visit. Thus, the site team interviewers were well versed in and familiar with the documented operational procedures of the site which facilitated interaction between interviewers and site personnel and helped to assure accurate understanding of the site's program.

The series of interviews and discussions with various personnel at each site required a day to a day-and-a-half. Although it was impossible to define precisely who would be interviewed for all sites, it was feasible to specify four categories of persons to be questioned. In general, these categories proved to be sufficient for obtaining information on the quality review programs. The categories were:

1. Person(s) responsible for administering quality assurance auditing
2. The Medical Director or chief physician

3. Persons responsible for conducting actual reviews
4. Administrative personnel involved with quality assurance activities

The division of labor for these responsibilities varied widely from site to site.

The actual site visits conducted by two senior research associates followed a relatively consistent format for all sites, as outlined below:

Evening prior to visit: Review of notes, documentation and deficiency list for site.

Visit:
1. Meeting with site contact and discussion of the schedule for the day
2. Interview and discussions with person responsible for the Quality Assurance Program (QAP) activities (approximately 1 1/2 hours)
3. Interviewing other important QAP personnel, committee members, etc. (1 1/2 hours)
4. Interview with the medical director (1 hour)
5. Break for lunch (usually involved informal discussion with QAP personnel)
6. Review of information collected during the morning and creation of a second deficiency list to give focus to the afternoon interview (1 hour)
7. Interview with personnel actually doing quality review (approximately 1 1/2 hours)
8. Interview with clinic administrator (1 hour)
9. Concluding interviews with personnel responsible for QAP activities (approximately 45 minutes)

An attempt was made to tape record all interviews for later transcription and review. However, some persons declined to be recorded, and in some situations the surroundings did not permit use of a recorder. After reviewing primary source documentation, investigators would interview participant personnel to collect information on the operational status of the quality assurance activities. The other major activity of the on-site investigation was to review substantiating evidence for a participant's quality assurance program. The team usually asked to see some data, e.g., minutes from meetings, to support verbal statements about a program. Time constraints and other factors made it impossible to conduct all interviews separately, as the investigators had requested. In a situation where more than one person was interviewed, tape recording also proved unfeasible. In all interviews, both interviewers took extensive notes. On the average, five people per site were interviewed.

When one day was insufficient time to gather all pertinent information, the site visit team returned the following day, if possible. Usually these second-day visits were used to review committee minutes, to speak with additional ancillary personnel and to follow up on specific questions not covered during the previous day.

DATA COMPILATION

Immediately after the conclusion of a site visit, data compilation began. Both site visitors reviewed and dictated their notes separately. Along with documentation provided by the site and the initial information from the DCI, these notes were placed in a reference file for the site. At this point, the reference file was reviewed for completeness and necessary follow-up information was collected.

Return visits to three sites were necessary for further data collection although most of the follow-up information was collected by telephone or letter. Once a file was judged complete, it was summarized into a single narrative description of the site.

The process of generating the descriptions for this portion of the study involved many steps in addition to those outlined above. Each site presented its own peculiarities during the writing of the description. The steps involved usually included most of the following:

1. Review of transcribed tapes, notes and the DCI
2. Listening again to taped interviews
3. Reviewing site grant applications
4. Reviewing committee minutes
5. Contacting the site again
6. Extensive discussion between site visit investigators

Each program description, written in accordance with a prescribed format to assure uniformity for all site descriptions, was prepared by a staff member and subjected to the three-level review process outlined below:

Review I Content review of initial draft
Review II Format review of second draft
Review III Final review by senior research associate

Thus the final reference file for each site includes:

1. A narrative description of the program including the delivery system and the quality review program (See Volume II: Program Descriptions)
2. All source documentation provided by the site
3. Transcribed tapes
4. Site visit notes
5. The DCI
6. Any other relevant material
   a. Articles
   b. Grant
   c. Minutes

DEVELOPMENT AND APPLICATION OF THE ACQAP MODEL

The development, application, and scoring of the Ambulatory Care Quality Assurance Model is described in the body of this volume.

CLASSIFICATION OF SURVEY SITES BY FACTORS 1-6

Twenty-three of the twenty-seven survey sites were used in the analysis of Factors 1-6; three sites were excluded because they were classified as research programs and one was excluded due to lack of data at the time of analysis. The chart below describes reasons:

Factor	No. of Sites included in Analysis	No. of Sites excluded from Analysis	Reasons for Excluding Sites by Factor
1. Type of Group Practice	17	6	Two sites did not deliver medical services and four sites were involved in multiple facilities rather than a single facility.
2. Type of Revenue Source to Delivery System	18	5	Three sites did not deliver medical services and two sites had multiple revenue sources which did not match the categories.
3. Length of Program Activity	23	0	———
4. Type of Q.A. Program Support	23	0	———
5. Type of Q.A. Review	22	1	One site used a combination of external and internal review.
6. Type of Data Source for Q.A. Program	20	3	One site used multiple facilities with a mixture of data sources and two sites used a computerized data format.

APPENDIX II

Data Collection Instrument (DCI)

SECTION 1: Delivery System

Part 1: Identification Sheet

Part 2: Current Structure

Part 3: Scope of Services

Part 4: Fiscal Factors

Part 5: Utilization Patterns

Part 6: Medical Record

Part 7: Billing

SECTION 2: Quality Review Program (QRP)

Part 1: Identification Sheet
Part 2: Current Structure
Part 3: Services and Geographic Factors
Part 4: Utilization
Part 5: Medical Record
Part 6: Billing
Part 7: Abstracting
Part 8: Data Analysis
Part 9: Computer/Automated Data Processing
Part 10: Case Selection Process
Part 11: Special Studies
Part 12: Criteria Standards
Part 13: Process/Outcome
Part 14: Critical Variables (Weighting)
Part 15: Review Procedures
Part 16: Episodes of Illness
Part 17: Feedback Action
Part 18: Impact Studies
Part 19: Consumer Satisfaction
Part 20: General Attitudes/QRP
Part 21: Cost of QRP

The questions used in the Data Collection Instrument are listed in the following pages. In the original DCI, ample space was allowed for answers and comments.

SECTION 1: DELIVERY SYSTEM

Part 1: Identification Sheet

1. Site name
2. Address
3. Telephone number
4. Date visited
5. Date scheduled for visit
6. Administrator
7. Medical director
8. Staff contact for HCMS
9. Starting date of operation:
   10. Clinic
   11. Quality review program (QRP)
12. Type of QRP planned
13. Comments:

Part 2: Current Structure

14. We would like to have, in any form, a description of the physical plant (including information on the following):
    - Number and description of equipment
    - Maximum allowed in facility
    - Number of waiting areas
    - Number of examination rooms
    - Number of physician offices
    - Ancillary service space (square footage)
15. Could you provide an organizational chart giving details on the following positions:
    - Administrative
    - Medical
    - Board of Trustees
    - Departments
    - Committees
16. Could you provide FTE information on your personnel positions:
    - Administrative
    - Medical
17. Briefly describe type of organization of medical staff
18. Describe ownership of clinic or office
19. Describe accreditation
20. Describe affiliations (e.g., professional groups, teaching university, etc.)
21. Describe relationship to:
    - State or local medical association
    - PSRO
    - Governmental agencies
    - Licensing boards

Part 3: Scope of Services

22. Please provide documentation of the services offered. If not available, could you list general categories of services?
23. What specific benefit packages does your clinic or office offer? Please provide documentation of such packages.
24. Provide a description of population served (social and demographic characteristics).
25. Are geographic factors a concern for your clinic? If so, do you know the farthest an individual travels to receive care? Do you know the farthest an individual travels for referral services?
26. Please describe unique geographic factors and whether or not you feel they affect the accessibility of care for your population.
27. Comments:

Part 4: Fiscal Factors

28. Describe funding sources which support the delivery of care.
29. In what form does clinic or plan receive funding (indicate %):
    fee-for-service
    insurance
    prepaid
    Medicaid
    Medicare
30. What is your total funding? Indicate dates of funding.
31. What were initial capital investments in your clinic or offices?
32. Could you provide cost figures for staffing (medical, administrative)?
33. Could you provide total operational cost (separate cost components, if available)?
34. Comments:

Part 5: Utilization Patterns

35. Could you provide documentation for the following areas:
    number of enrollees or members of plan or clinic
    number of encounters per year
    utilization of enrollees/members by service
36. Time of day when most service is delivered (indicate %):
    a.m.
    p.m.
37. Can you provide documentation on utilization patterns by department?
38. Can you provide documentation on utilization patterns by diagnosis?
39. Can you provide documentation on utilization patterns by procedure?
40. Comments:

Part 6: Medical Record

41. Could you provide documentation or describe medical record system procedures (specific data flow characteristics)?

42. Could you provide a medical record copy or a list of data elements?
    Data elements
        ID sheet/coverage
            Patient ID (coding system)
            Provider ID (coding system)
    Clinical data
        Diagnosis, treatment, follow-up
        Lab sheet/X-ray
        Ancillary services
        Drugs
        Consultation/referrals
43. Could you classify the medical record as one of the following (circle):
    POMR
    Chronological
    Source oriented
    Time oriented
    Other:
44. Is data recorded in other places (e.g., nurses station card file) besides chart for:
    Diagnostic procedures
    Treatment procedures
    Follow-up procedures
    If so, please describe.
45. Comments:

Part 7: Billing

Note: If copy of billing form supplies answers to following question, please attach billing form and comments.

46. Could you describe your billing process (briefly)?
47. At what point are services for one encounter noted for billing purposes?
48. What (if any) codes are used to describe various diagnostic and treatment procedures? Describe.
49. What data elements are included on billing forms?
50. The number of personnel involved with billing process
51. Comments:

SECTION 2: QUALITY REVIEW PROGRAM (QRP)

Part 1: Identification Sheet

1. Why was QRP initiated?
2. What are the stated goals and objectives of your QRP?
3. How was agreement reached on goals and objectives?
4. How was your QRP approach selected? Describe the rationale.
5. Was it necessary to define "quality" in your program? If so, how did you do so?
6. Describe amount of literature research done prior to quality assurance program.

7. Describe the use of consultants to develop and implement quality assurance program.
8. How would you describe your attitude toward assessing quality of care?
9. What unique characteristics of the practice setting affected the development and implementation of your quality review program? (e.g., turnover rate of physicians, patient population, historical development of medical staff or clinic)
10. Describe any special problems or considerations which affected the implementation of quality review.

Part 2: Current Structure

11. Could you provide an organizational chart giving details on the following positions in the QRP:
    - administrative
    - clerical
    - medical
    - committees
    - departments
    - Board of Trustees role
12. Could you provide numerical information on the following personnel positions in QRP:
    - administrative
    - medical
    - specialists
    - consultants
    - technologists
13. Describe duties of personnel in QRP. Attach job descriptions if possible.
14. Describe input received by outside groups or affiliations for QRP (e.g., teaching universities, medical associations, etc.).

Part 3: Services and Geographic Factors

15. Provide documentation on the services (either diagnostic or treatment) reviewed in QRP.
16. How were services chosen for review?
17. Describe (by practice type) the providers reviewed in the QRP.
18. Are geographic factors a concern in QRP? If so, please describe.

Part 4: Utilization

19. Are utilization figures used in QRP? If so, how are they employed (e.g., frequency distributions, statistical variations, etc.)?
20. Do you specifically measure for over- and/or under-utilization in QRP? If so, please describe.
21. Describe the number of encounters reviewed in QRP.

Part 5: Medical Record

22. Are medical records used in QRP? If so, please describe how.
23. What medical record data elements are used in QRP?
24. How many people in the medical records department are concerned solely with QRP?
25. How many personnel?
26. Do QRP medical records personnel have special training? Or duties?
27. Are diagnostic and treatment procedures medically verified for purposes of quality review?
28. Where does medical record go for QRP processing?
29. Are special forms (e.g., encounter forms) included in charts for strictly QRP purposes? Please attach.

Part 6: Billing

30. Are billing forms used in the QRP? If so, please describe.
31. What data elements of billing form are used?
32. Who collects billing data elements?
33. How many personnel are involved?
34. Do personnel have any special duties or training for QRP data collection?
35. Where does billing information go for the QRP?
36. If billing is used in QRP, are procedures employed to affect medical performance (e.g., payment denial)? If so, please describe.

Part 7: Abstracting

37. Is abstracting done for QRP purposes? If so, please describe.
38. Could you please provide a copy of the abstract form?
39. What data elements are abstracted and from what source?
40. Is coding used to transfer information to different format? If so, what codes are used?
41. Are explicit guidelines developed for abstracting? Please attach.
42. What personnel are involved in abstracting? How many? How are people trained to abstract?
43. Is abstracting procedure monitored? If so, describe.
44. What is reliability of abstract monitoring system?
45. How confident are you about the reliability of your abstracting process?
46. What is an acceptable error rate?
47. Are reliability studies available? If so, please provide.
48. Who receives copies of abstracts?
49. Is abstract data verified by medical personnel prior to review?
50. Is abstract processed manually or computerized?

Part 8: Data Analysis

51. Describe what data base is analyzed for purposes of QRP.

52. Are QRP data elements analyzed manually or ADP? If ADP, also answer questions in Part 9.
53. What types of aggregate data are available for analysis?
    utilization figures
    diagnostic categories
    treatment categories
    services
54. How often is data base updated for use in QRP?
55. What types of ongoing analysis are done in QRP?
56. What types of special analysis are done in QRP?
57. What personnel are involved in analysis of data for QRP? What are their skill levels?
58. What reports are made available to:
    administrative staff
    medical staff
    others
59. What is the format of such reports?
60. Are individual patient profiles available for QRP analysis?
61. Are characteristics of QRP data presented in:
    numbers
    frequency distributions
    means
    percent
    percentiles
62. Which data array seems most effective in QRP or which one is most accepted for QRP?

Part 9: Computer/Automated Data Processing

63. Could you describe the use of automated/computerized data processing in your clinic? Describe any company with which you work.
64. Could you describe the use of automated/computerized data processing in your QRP?
65. Describe the reasons for implementing an automated system in your setting.
66. How long has your automated system been operational?
67. How many personnel are involved in the operation of the automated system?
68. Are computer programs used in QRP (e.g., Biomed, SPSS, specially developed programs)?
69. Describe the use of hardware.
70. Do you lease or own hardware? Do you use hardware in some other facility (e.g., university)?
71. Are computerized criteria standards used to evaluate quality? If so, how are they entered into computer? Describe the type of program developed.
72. How is data entered into automated system?
73. What types of coding are done prior to entering data into system?
74. What is turnaround time in the automated system?
75. Describe the major problems in software, hardware, and implementation of the total automated system.

Part 10: Case Selection Process

76. In QRP, are cases selected for review or evaluation? If so, what criteria are employed for selection? Please describe.
77. Describe sampling procedures to select cases.
78. Who selects the cases for review?
79. What types of data are taken from these selected cases?
80. What uses are made of cases or data taken from such cases? Describe.
81. Who has access for review purposes to selected cases? Do they have access to other data regarding cases?
82. Are the same personnel who review the only persons who see data from selected cases?
83. If criteria are established to evaluate cases, how does examiner determine variance?
84. What happens to variant cases after review? How is that information processed for QRP purposes?
85. What is the time frame involved from case selection to review?
86. What does QRP do to examine cause of deviances?
87. Is the purpose of case selection to identify individual error or to discover patterns that require change?

Part 11: Special Studies

88. Does QRP include the use of special studies? Describe.
89. If so, how are they oriented to solve specific problems?
90. How are topics selected for special study?
91. Are samples employed to collect information for special studies?
92. How is sample determined (e.g., random cases, high risk groups, age groups)?
93. What types of study formats are used in special studies (e.g., observational, clinical trial, pre-post design)?
94. Are statistical display methods used for identification of deviance?
95. If special studies address a specific diagnosis or treatment, how are those cases "flagged" from the population?
96. How do you follow up on special studies to measure impact?

Part 12: Criteria/Standards

97. Are criteria/standards employed for quality review purposes?
98. How were they developed?
99. Who developed?
100. Were they adopted from other programs?
101. Were they developed inhouse?
102. Was there broad inhouse consensus on the criteria/standards used in QRP? Please describe the procedure for such consensus.
103. Are the same personnel who developed the criteria evaluated by the same criteria?
104. Were criteria/standards developed from academic research and standards (e.g., literature, expert) or were they developed based on empirical evidence?

105. Describe the administrative implementation of the criteria and standards.
106. Describe the role criteria/standards play in assessing total quality of service delivered in the clinic.
107. What evidence is available which indicates the effectiveness, acceptability, and accuracy of your criteria/standards?
108. If criteria/standards are available, could you please provide a copy.
109. Are the criteria/standards implicit or explicit?
110. How was the stringency of standards/criteria determined?
111. How are criteria/standards updated and reformulated? Please describe.

Part 13: Process and Outcome

112. Assuming that criteria/standards are employed in the QRP:
    Does criteria focus on process, outcome, or both?
    How are criteria/standards related to processes of care?
    How are criteria/standards related to different end results or outcomes?
113. Assuming the distinction between process and outcome criteria, in your opinion which is most important for quality review? Describe how your QRP deals with this issue.
114. Was literature research for use in QRP cited to develop emphasis on either process or outcome measures?
115. Are different criteria and standards developed for different patient population or practice settings?

Part 14: Critical Variables (Weighting)

116. Does your QRP consider certain variables (e.g., procedures) of quality review more important than others?
117. If so, are weighting or indexing schemes employed in QRP to emphasize more critical variables?
118. What variables are weighted?
119. Describe processes employed (e.g., factor analysis) to weight such variables.
120. How was the weighting scheme determined?
121. Describe impact of weighting scheme on quality review.

Part 15: Review Procedures

122. Are review procedures employed in your QRP? Please describe the type of review done.
123. How was the review procedure developed? Describe.
124. What materials are present at review sessions? Who arranges materials and schedules?
125. If medical records are reviewed, is the record reviewed directly, through abstract, encounter forms, and/or claim forms?
126. How many personnel are involved in the review process? Note whether they are medical or administrative personnel.

127. Are the data used in the review always complete? If not, what is used?
128. Is record data verified prior to review?
129. If medical personnel review, how is their judgment validated for accuracy?
130. How do you control bias or external influences on the review process?
131. How is reliability of review determined? Describe.
132. Are reviews compared with other reviews?
133. Is there any evidence of a relationship between recording procedures and the review records to quality review?
134. Is the review linked to corrective action? Describe.
135. How are reviewers trained (either clerical or medical)? Describe.
136. Is randomization used for assigning cases to reviewers? If not, describe how cases are distributed to reviewers.
137. Are there specialized guidelines established to govern review procedures? Please attach.

Part 16: Episode of Illness

138. Does QRP evaluate episodic patient illnesses? If so, how is an episode of illness defined?
139. How are episodes chosen?
140. Are patient profiles dealing with specific episodes available?
141. Are provider based profiles available for review dealing with specific episodes?
142. How are data elements of care linked in a specific time frame for review?

Part 17: Feedback Action

143. Does a system for feedback to providers and/or patients exist in your QRP?
144. Describe the system of feedback based on your quality review?
145. What is the corrective action process (e.g., strictly administrative, strictly educational, etc.)?
146. Is medical education of staff an important feedback mechanism in your QRP? Describe your medical education program.
147. If so, how are these educational needs determined?
148. In terms of educational feedback, are there links with educational institutions (e.g., university teaching hospitals, medical associations, etc.)?
149. How is corrective action implemented? Who initiates such action?
150. Describe the procedures by which a provider can appeal or question feedback.

Part 18: Impact Studies

151. Have you done any impact studies to determine the effects of your quality review activities? If so, could you please provide results?
152. What components of your QRP were measured or evaluated?
153. Was any evaluation of consumer satisfaction done? Of provider satisfaction?
154. If education is a part of your QRP, did you evaluate the impact of your educational program?

Part 19: Consumer Satisfaction

155. Are patients questioned, in any form, about the quality of medical care delivered in your setting?
156. If so, how are these patients questioned?
157. Do you measure any acceptability variables? (For example, e.g., appointment time, waiting time, patient-provider relationships, etc.)

Part 20: General Attitudes

158. Do you feel the quality of medical care in your clinic is:
    1. Excellent
    2. Good
    3. Fairly Good
    4. Adequate
    5. Poor
159. Do you feel the competency of the medical staff is:
    1. Excellent
    2. Good
    3. Fairly Good
    4. Adequate
    5. Poor
160. Could you describe five variables which affect the quality of care within your setting?
    1.
    2.
    3.
    4.
    5.
161. Is it worthwhile to assess the performance of medical providers?
    Yes No
    Explain answer.

Part 21: Fiscal/Cost Factors

162. What funding sources support your QRP (e.g., research grants, federal subsidies, etc.)?
163. What is the total budget for QRP? Over what time period?
164. Is QRP funding related to third party payers (e.g., percentage of billing cost saved and channeled to QRP)?
165. Do you have figures or estimates on QRP expenditures per patient? Per physician? Per administrative staff?
166. Over a specific period of time (e.g., last six months), what has been the QRP cost trend?
167. What are the QRP costs:
    Medical staff cost -
    Administrative staff -
    Clerical staff -
    Other cost categories (please be as specific as possible) -
168. Was any initial capital-type investment made for QRP (e.g., computer system, new offices, special forms, etc.)?

Costs for Computer/Automated Data System:

1. What was the total developmental cost for the computer/automated system?
2. What is the total operational cost of the computer/automated data system?
3. What are the funding sources for these costs?
4. How many personnel are involved in operating computer/automated system for QRP:
   - Programmers -
   - Analysts -
   - Consultants -
   - Data Clerks -
   - Coders -
   - Computer Operations -
5. Please note personnel cost (both FTE and PTE).
6. What were the equipment costs for use in QRP (e.g., keypunch machine, CRT devices, etc.)?
7. The cost of supplies for the computer/automated system for QRP?

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APPENDIX III

Ambulatory Care Quality Assurance Project Model Consultants

1. Dr. Robert Brook, University of California School of Medicine, Los Angeles, and The Rand Corporation, Santa Monica, California

2. Dr. John Collette, Associate Professor, Department of Sociology, University of Utah, Salt Lake City, Utah

3. Dr. Joseph S. Gonnella, Director of Medical Education, Jefferson Medical College, Philadelphia, Pennsylvania

4. Dr. Robert Kane, Department of Family and Community Medicine, University of Utah, College of Medicine, Salt Lake City, Utah

5. Dr. James P. LoGerfo, Department of Health Services, School of Public Health and Community Medicine, University of Washington, Seattle, Washington

6. Jeanne Magagna-Deuschle, Deputy Director, Peer Review Program, Health Insurance Plan of Greater New York, New York

7. Marie Michnich, Ambulatory Care Evaluation Project, School of Public Health, University of California, Los Angeles, California

8. Dr. Beverly C. Payne, Office of the Deans, University of Michigan, School of Medicine, Ann Arbor, Michigan

9. Dr. James Roberts, The Bureau of Quality Assurance, Department of Health, Education, and Welfare, Rockville, Maryland

10. Dr. Nora Lou Roos, University of Manitoba, Faculty of Medicine, Department of Social and Preventive Medicine, Winnipeg, Canada

11. Dr. Paul J. Sanazaro, University of California School of Medicine, San Francisco, California

12. Dr. John W. Williamson, Department of Health Care Organization, Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Maryland

13. Eugene C. Wood, Director of Ambulatory Care, Department of Health Planning and Delivery, American Hospital Association, Chicago, Illinois

14. Dr. George Whitworth, Department of Peer Review Coordination and Appeals, California Medical Association, San Francisco, California

15. Dr. Mark Pearlman, Community Health Services, Bureau of Health Services Research, Department of Health, Education, and Welfare, Rockville, Maryland

APPENDIX IV

Interrater Reliabilities

Site	Judges 1 & 2	Judge 3		Overall Average
		With 1	With 2	
01	.88	.84	.79	.84
02	.92	.69	.68	.76
03	.96	.78	.79	.84
04	.94			
05	.93			
06	.90	.80	.75	.82
07	.96	.74	.73	.81
08	.97	.68	.69	.78
09	.97			
10	.89			
11	.93	.76	.75	.81
12	.91			
13	.90			
14	.98	.81	.81	.87
15	.93			
16	.97	.77	.76	.83
17	.83			
18	.93	.78	.76	.82
19	.96			
20	.88			
21	.99	.85	.85	.90
22	.94			
23	.93			
24	.94	.71	.73	.79

Overall Average Reliability - 87%
Judges 1 and 2 were the site investigators.
Judge 3 was another HCMS staff member.

APPENDIX V

FIGURES: SCORES BY SETTING AND QUALITY ASSURANCE PROJECT CHARACTERISTICS

FIGURE A

FACTOR NO. 1: TYPE OF GROUP PRACTICE

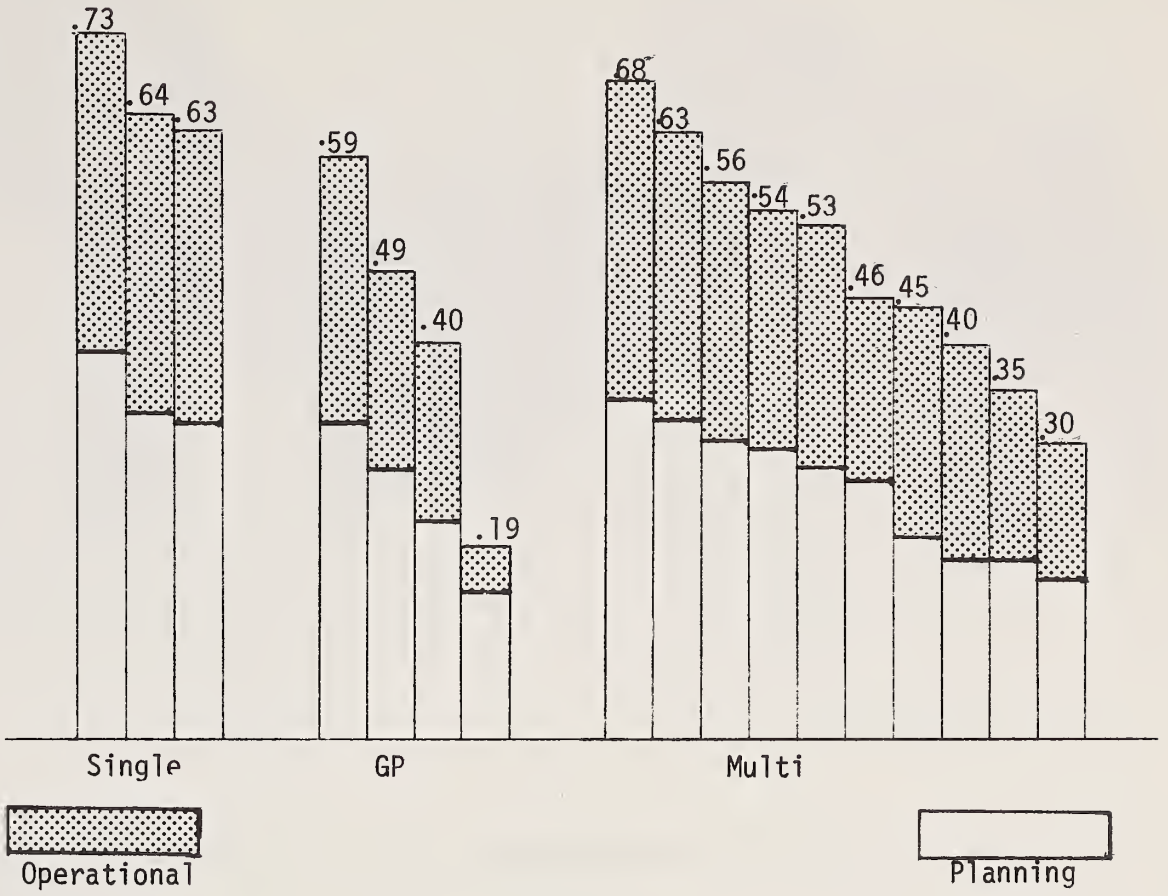


FIGURE B

FACTOR NO. 2: TYPE OF REVENUE SOURCE TO DELIVERY SYSTEM

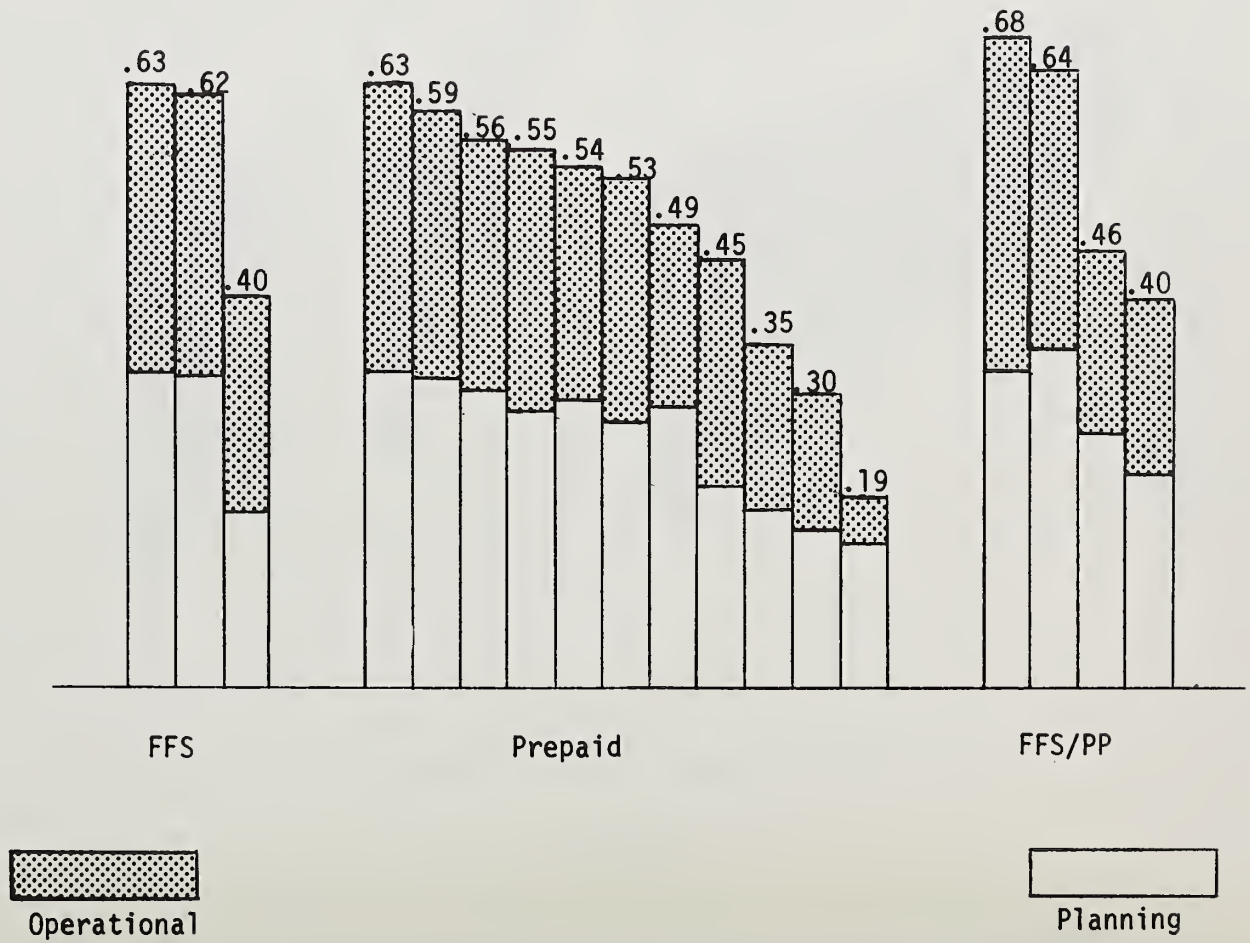


FIGURE C

FACTOR NO. 3: LENGTH OF QUALTIY ASSURANCE PROGRAM ACTIVITY

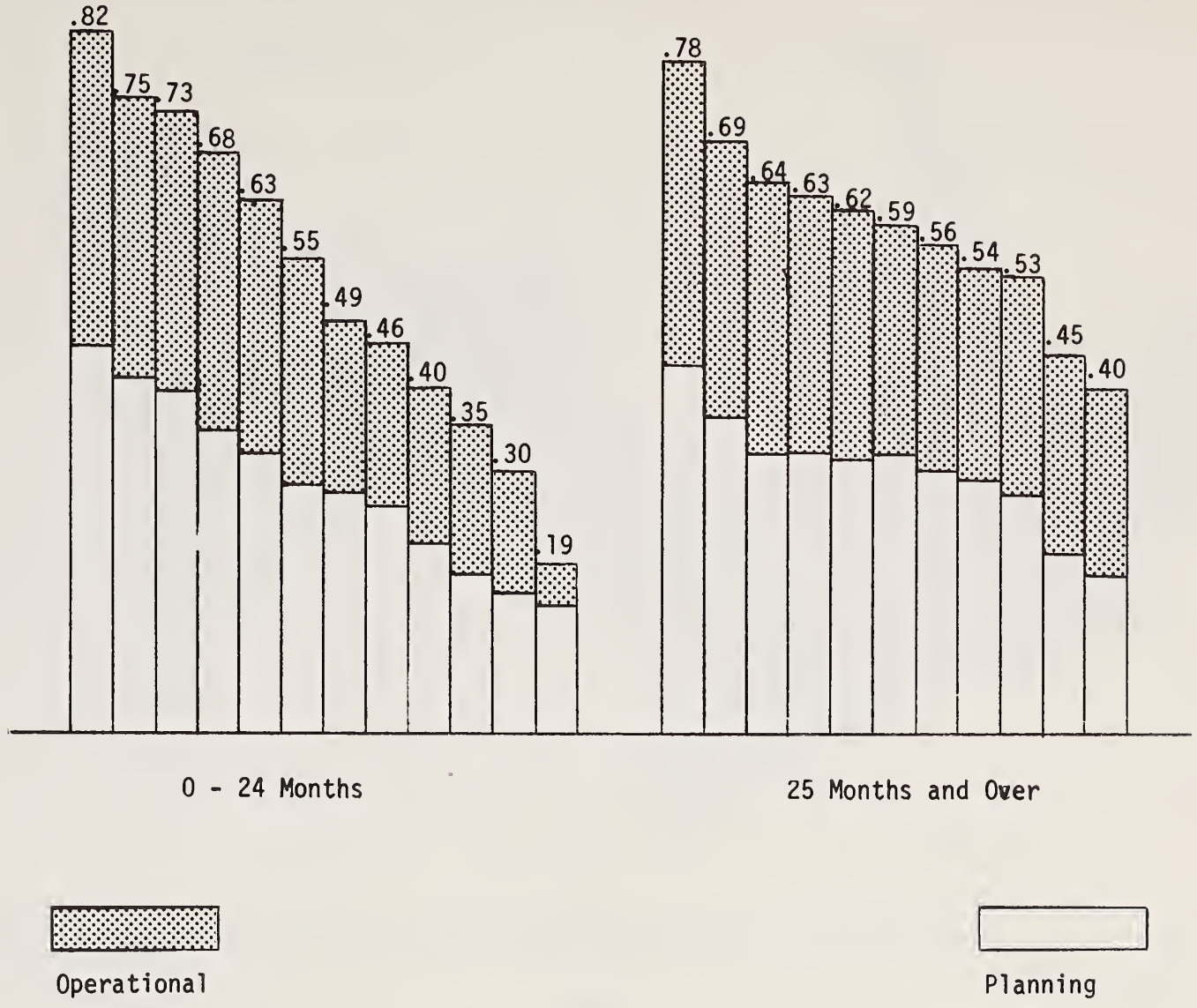


FIGURE D

FACTOR NO. 4: TYPE OF QUALITY ASSURANCE PROGRAM SUPPORT

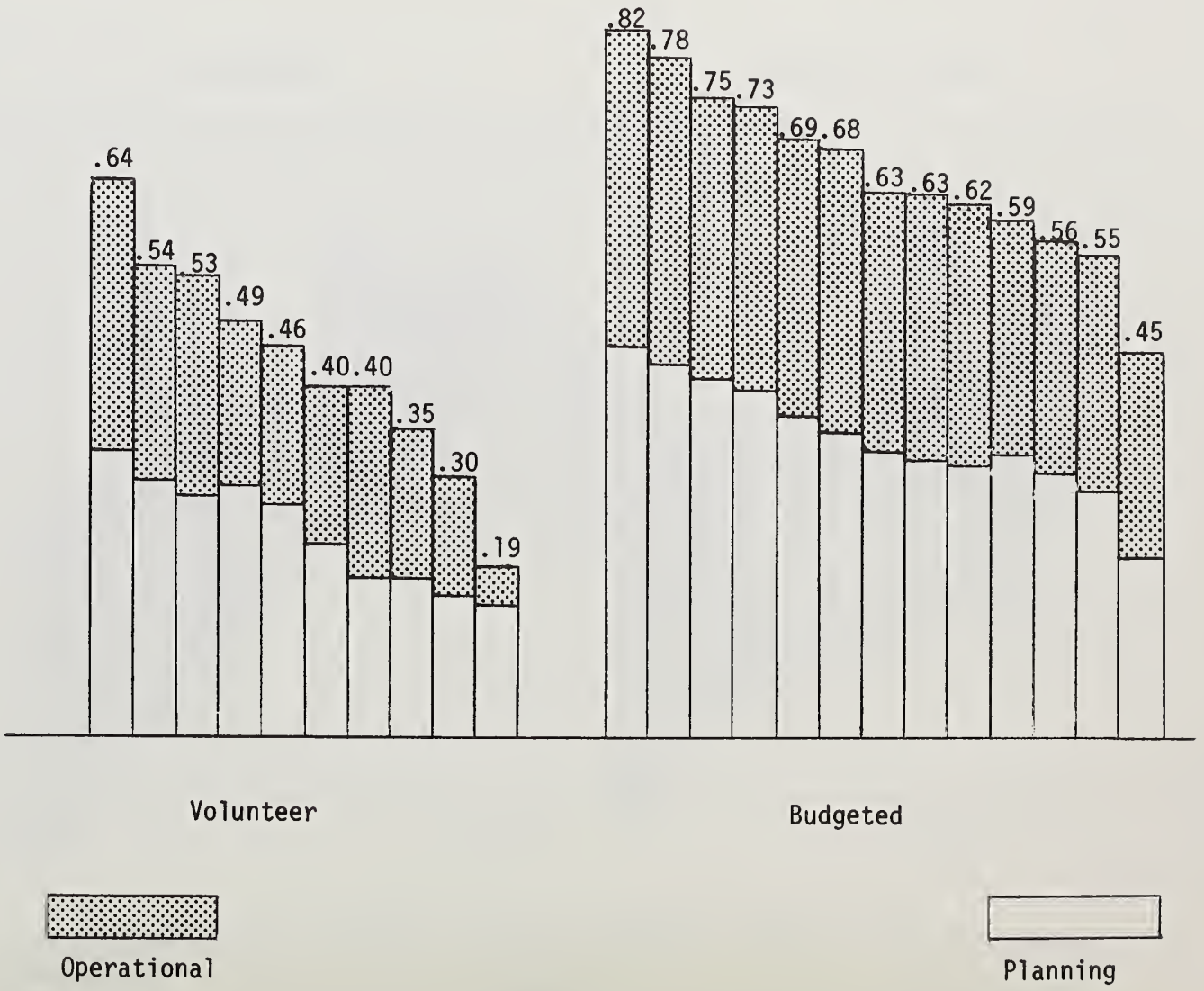


FIGURE E

FACTOR NO. 5: TYPE OF QUALITY ASSURANCE REVIEW

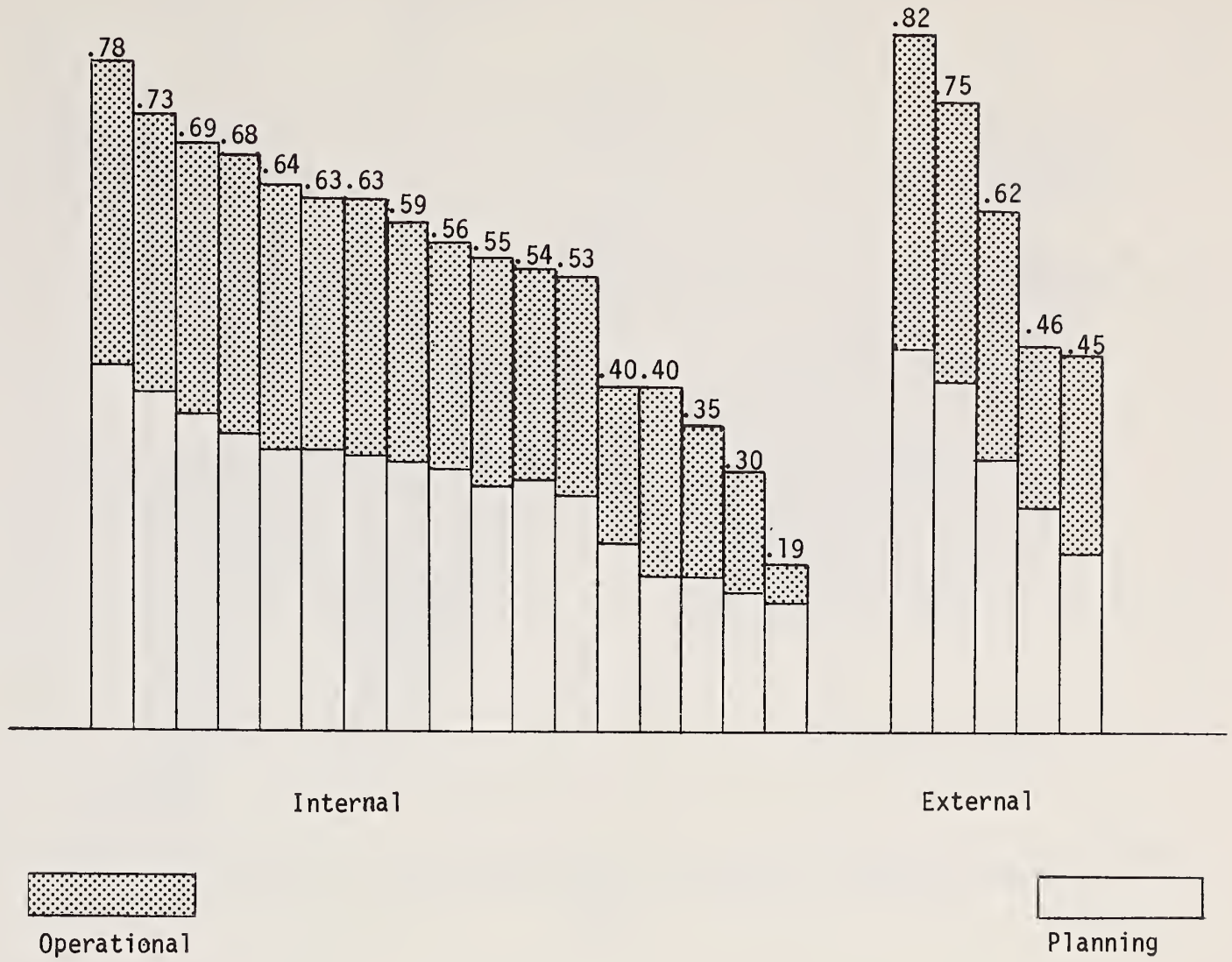


FIGURE F

FACTOR NO. 6: TYPE OF DATA SOURCE FOR QUALITY ASSURANCE PROGRAM

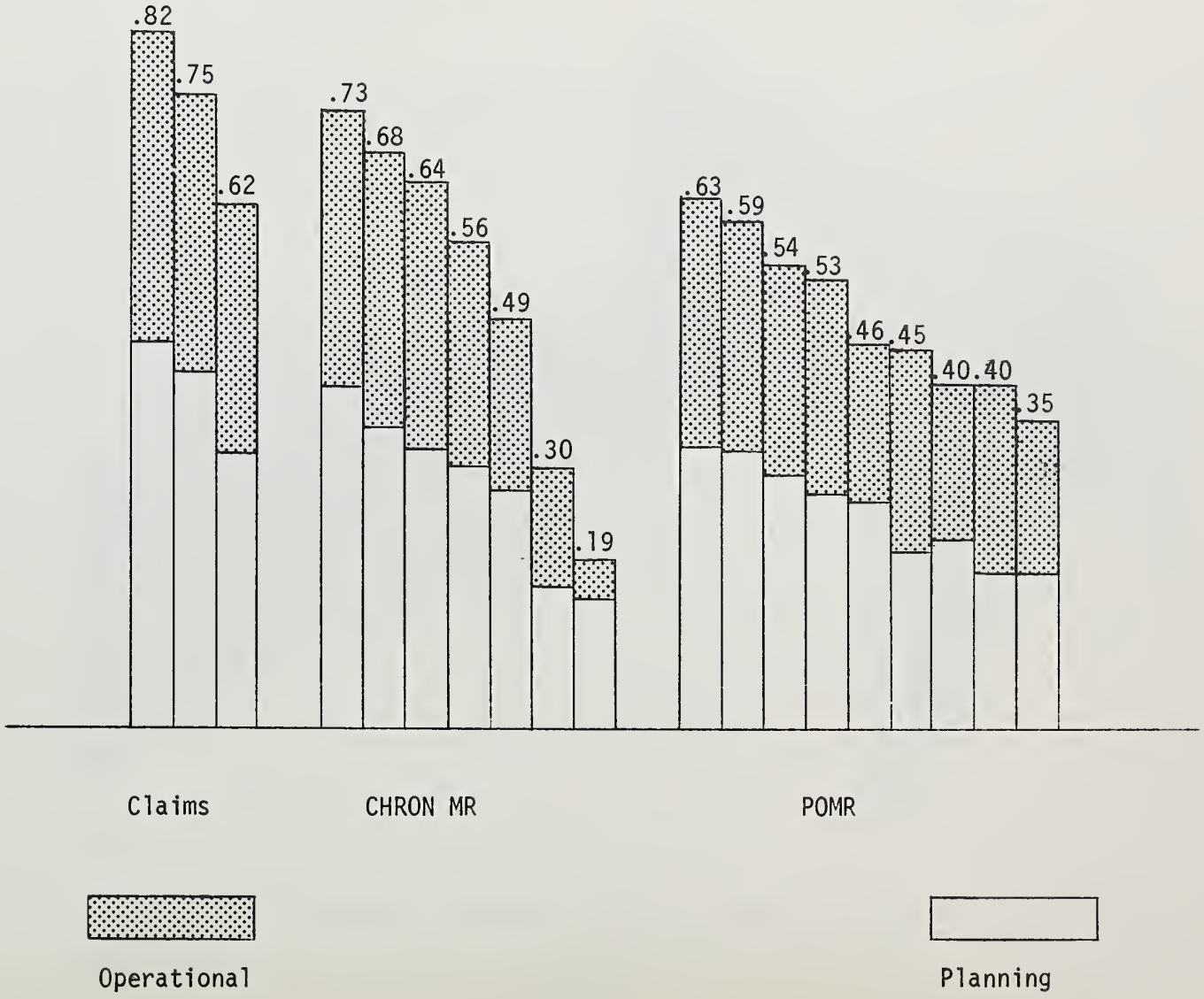


FIGURE G

TOTAL SCORES BY GROUP PRACTICE TYPE BY LENGTH OF ACTIVITY

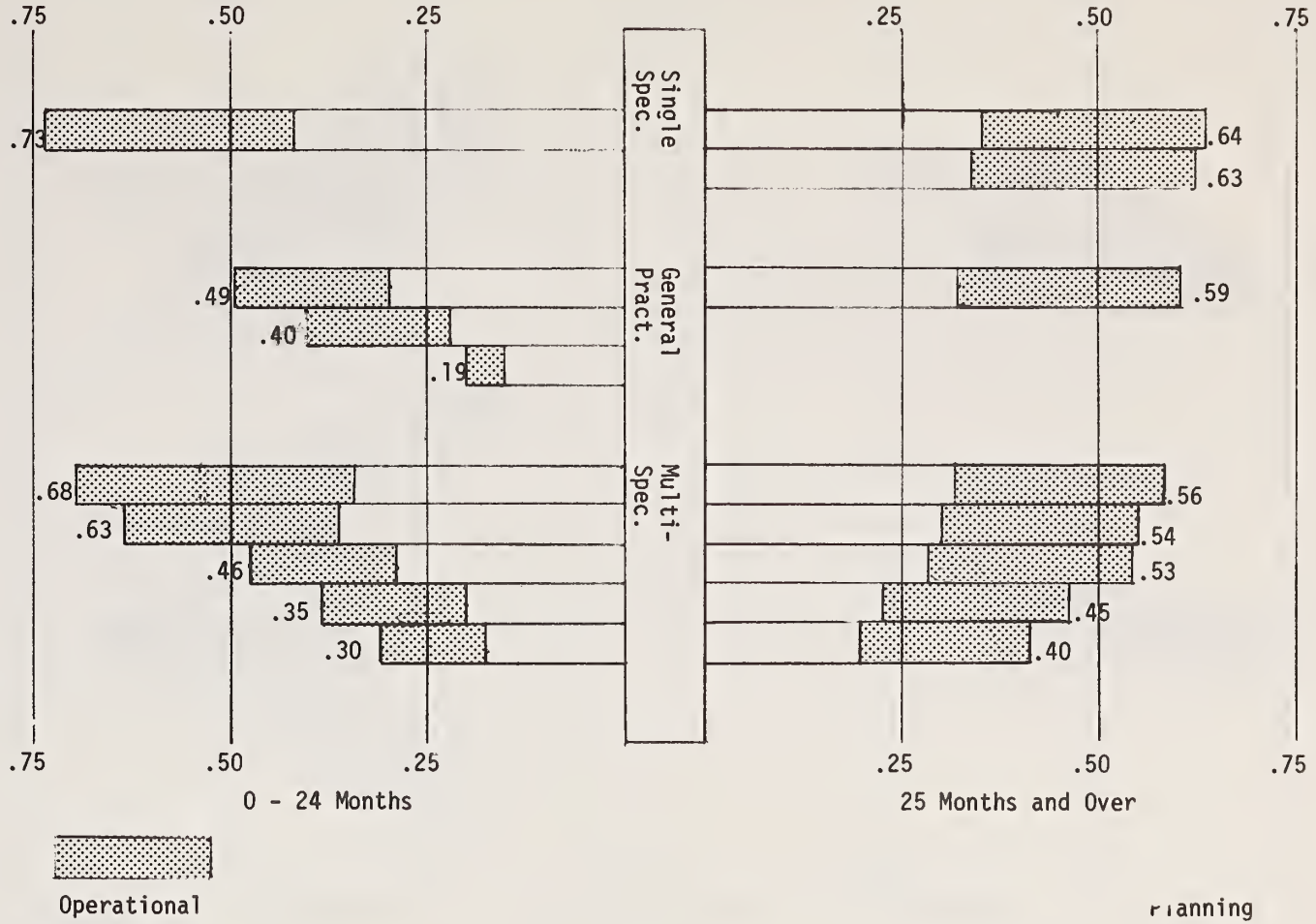


FIGURE 4

TOTAL SCORES BY GROUP PRACTICE TYPE BY QA FUNDING SUPPORT

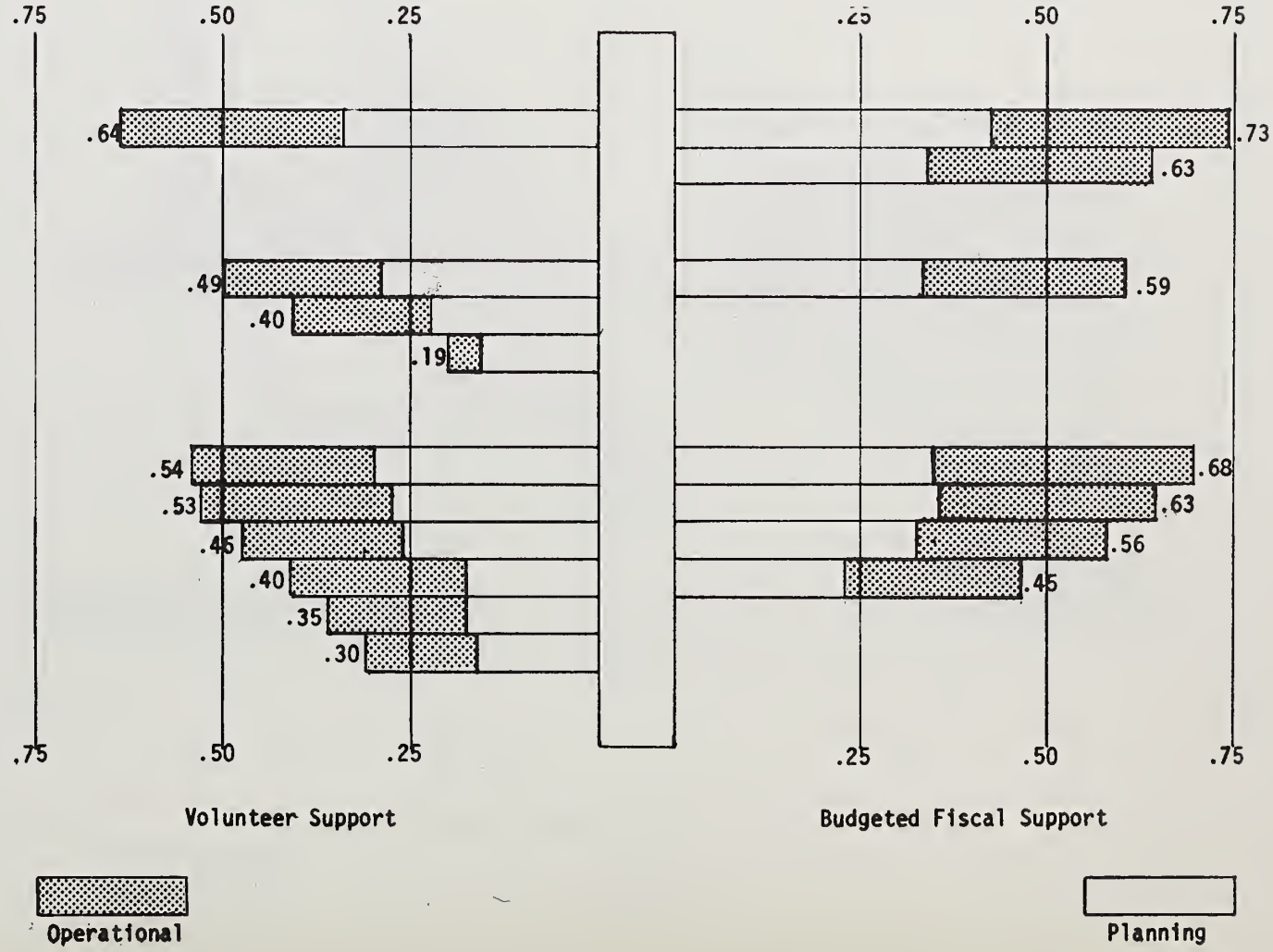


FIGURE I

TOTAL SCORES BY GROUP PRACTICE TYPE BY REVIEW TYPE

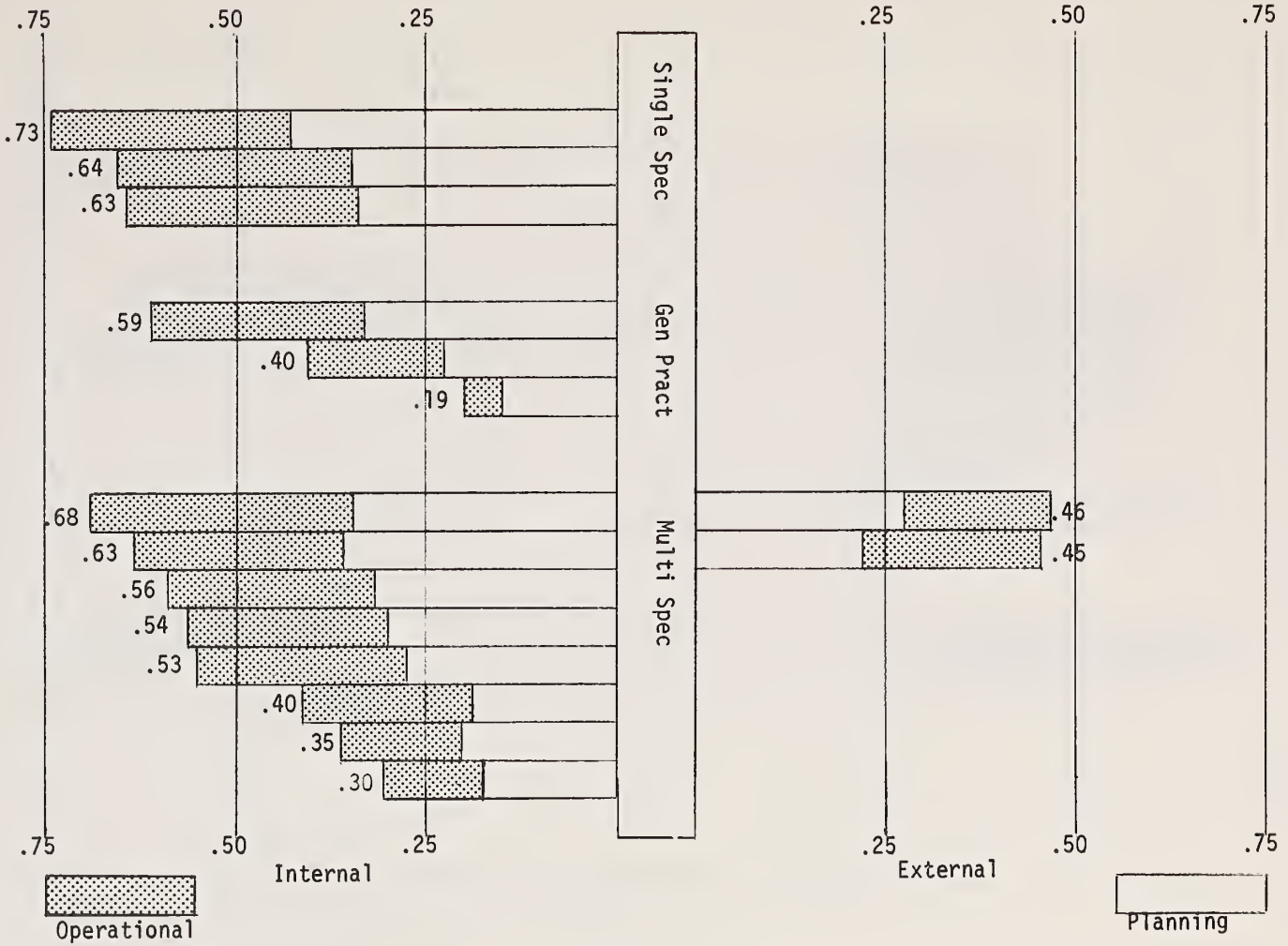


FIGURE J

TOTAL SCORES BY TYPE OF GROUP PRACTICE BY DATA SOURCE

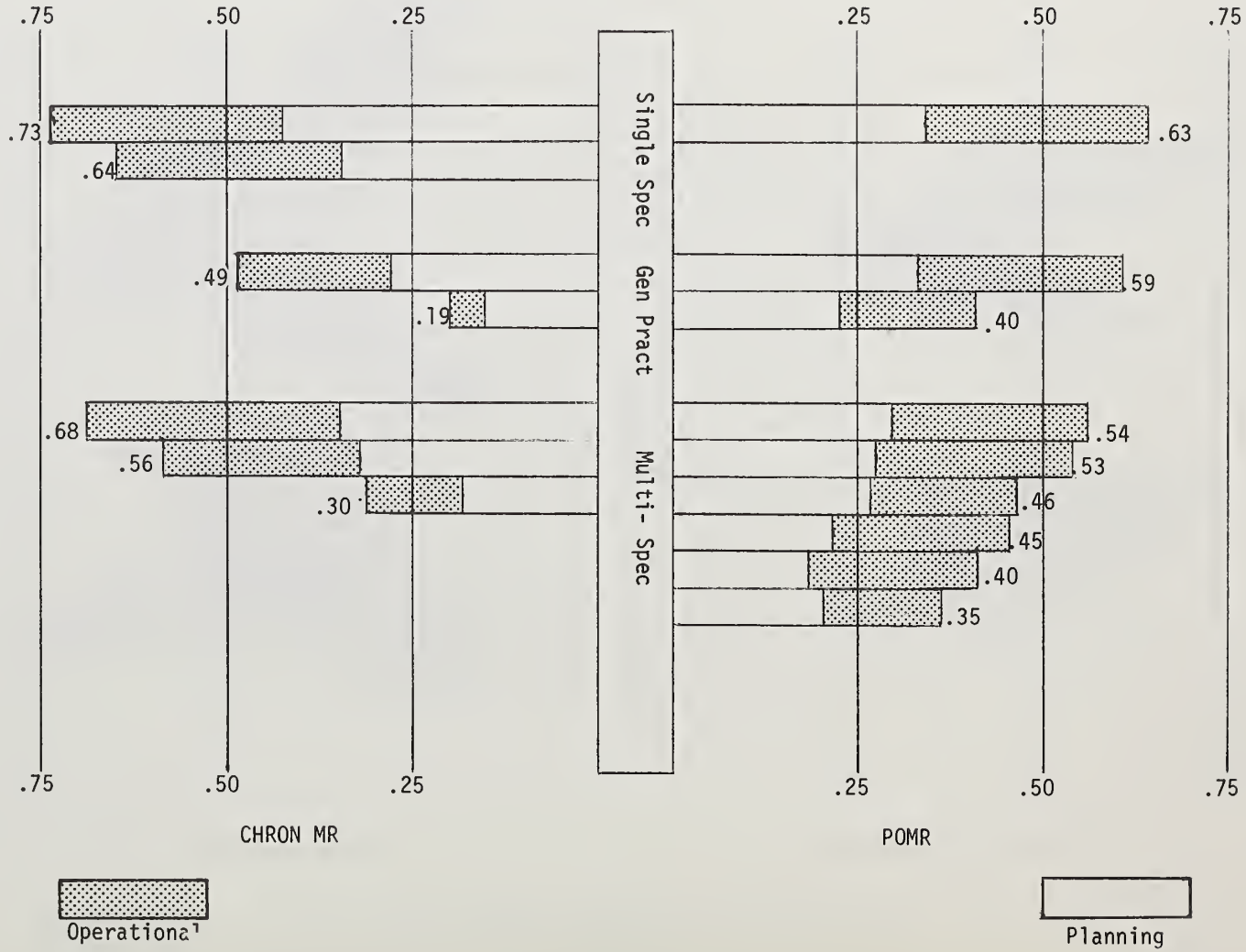


FIGURE 8

TOTAL SCORES BY DELIVERY SYSTEM REVENUE SOURCE BY GROUP PRACTICE TYPE

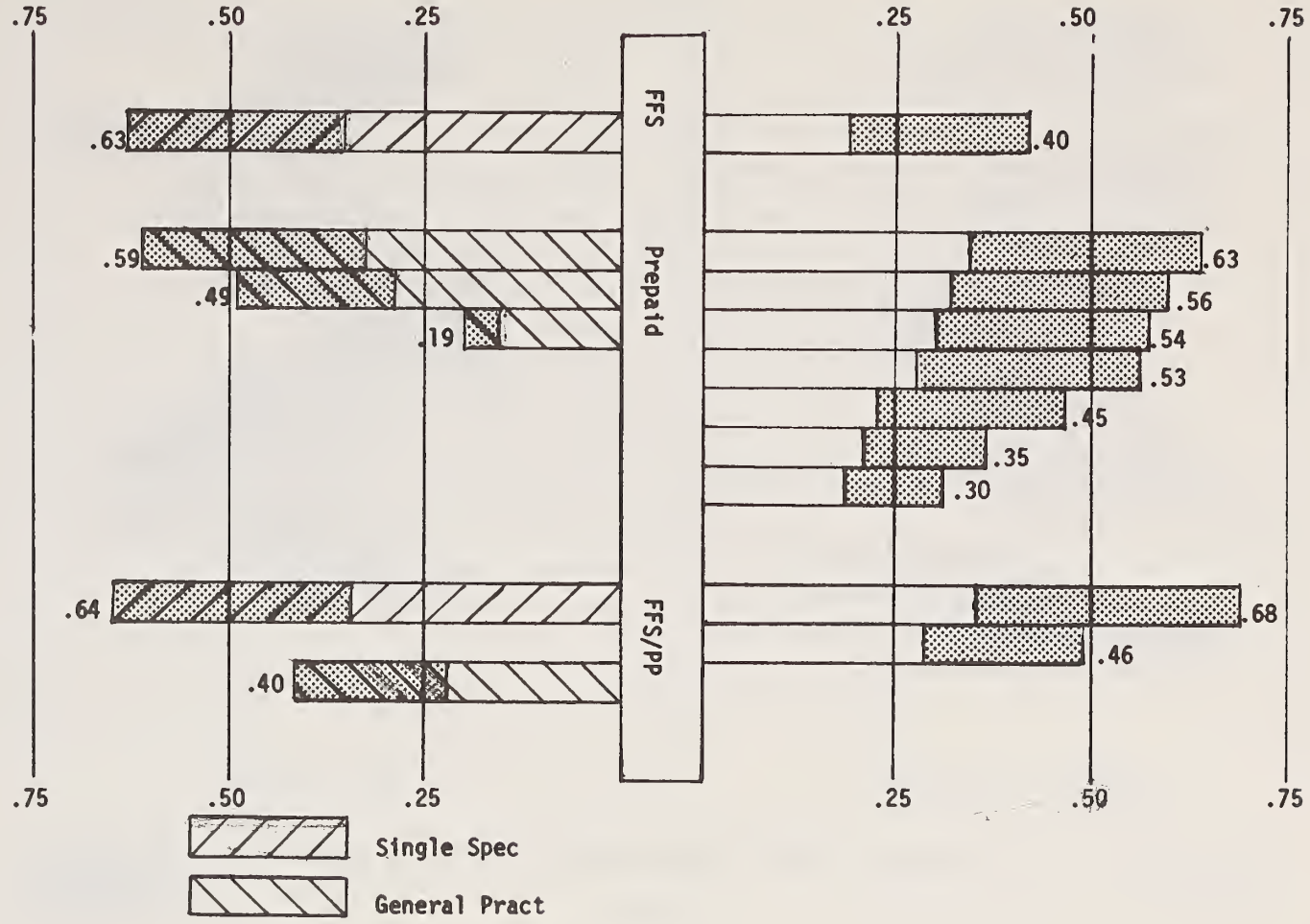


FIGURE 5

TOTAL SCORES BY DELIVERY SYSTEMS REVENUE SOURCE BY LENGTH OF ACTIVITY

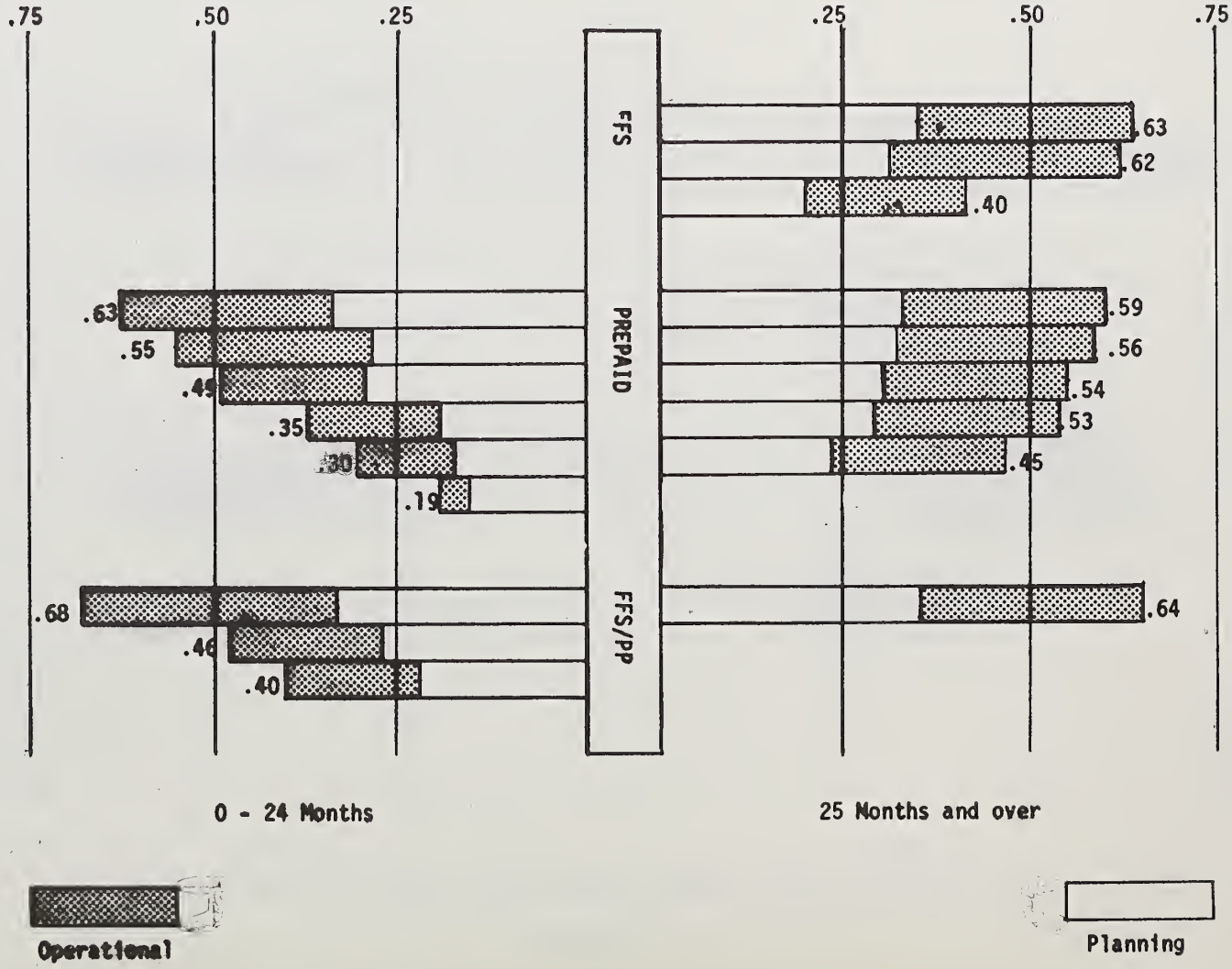


FIGURE 4

TOTAL SCORES BY DELIVERY SYSTEM REVENUE SOURCE AND QA FUNDING SUPPORT

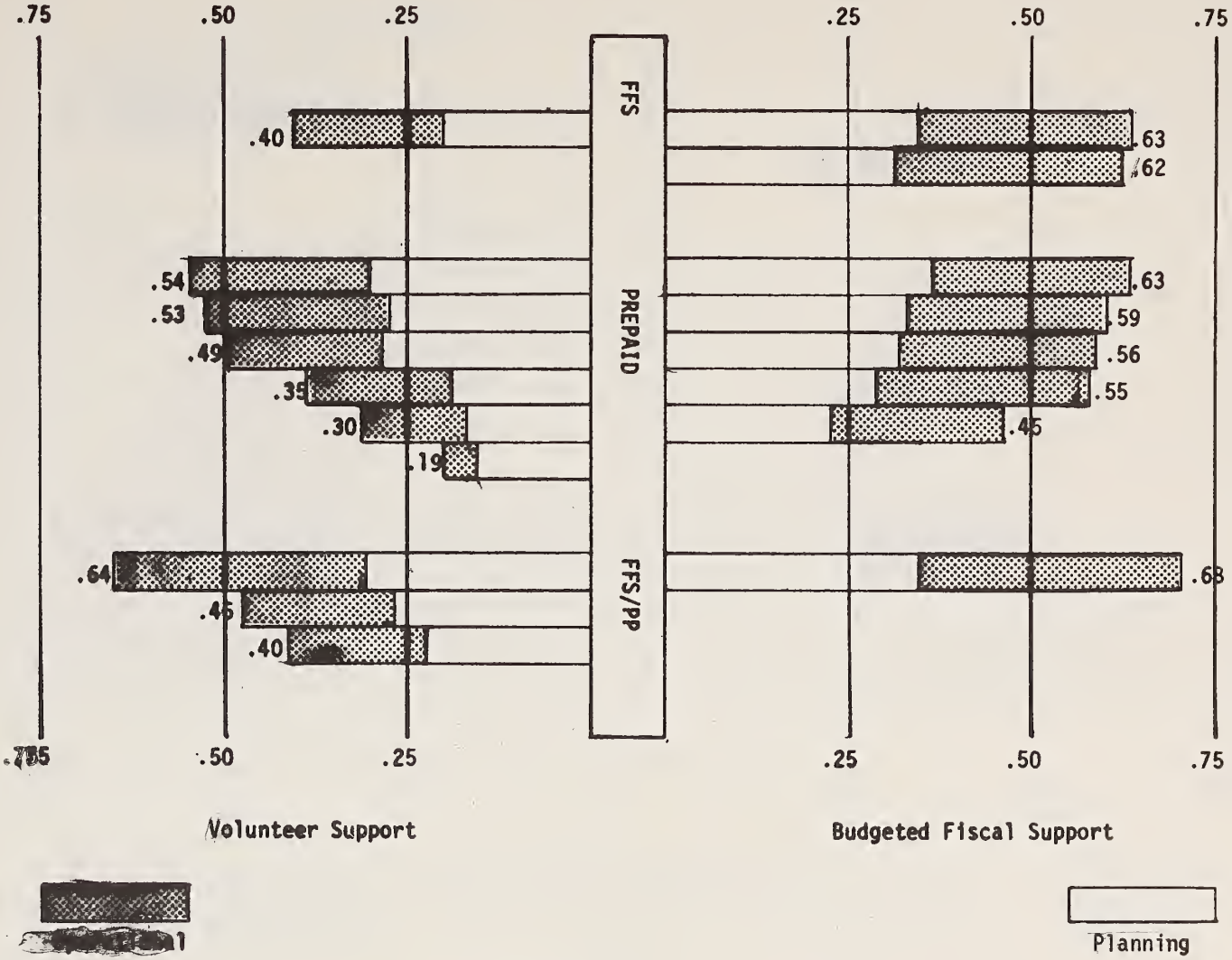


FIGURE N

TOTAL SCORES BY DELIVERY SYSTEM REVENUE SOURCE BY REVIEW TYPE

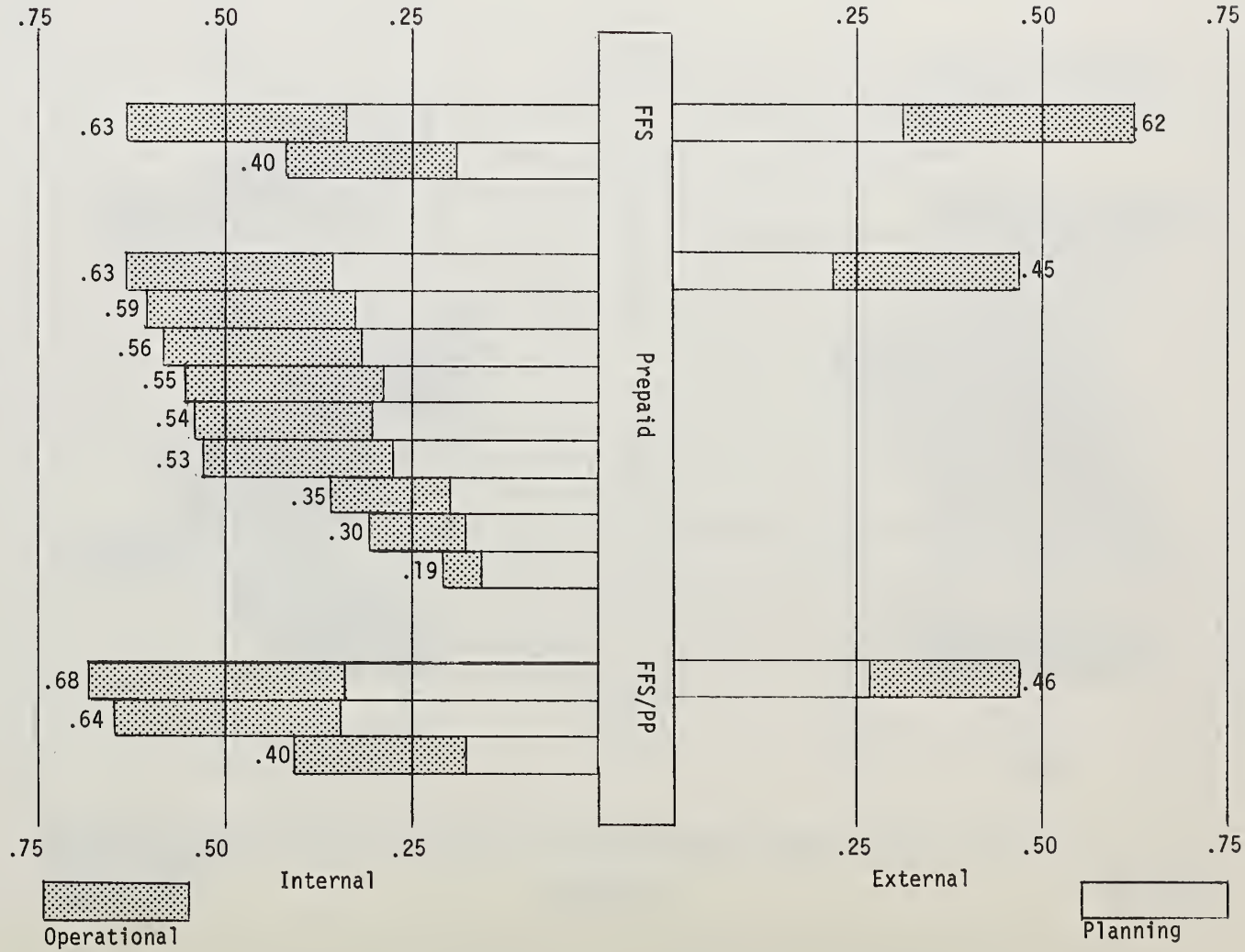


FIGURE 0

TOTAL SCORES BY DELIVERY SYSTEM REVENUE SOURCE BY DATA SOURCE

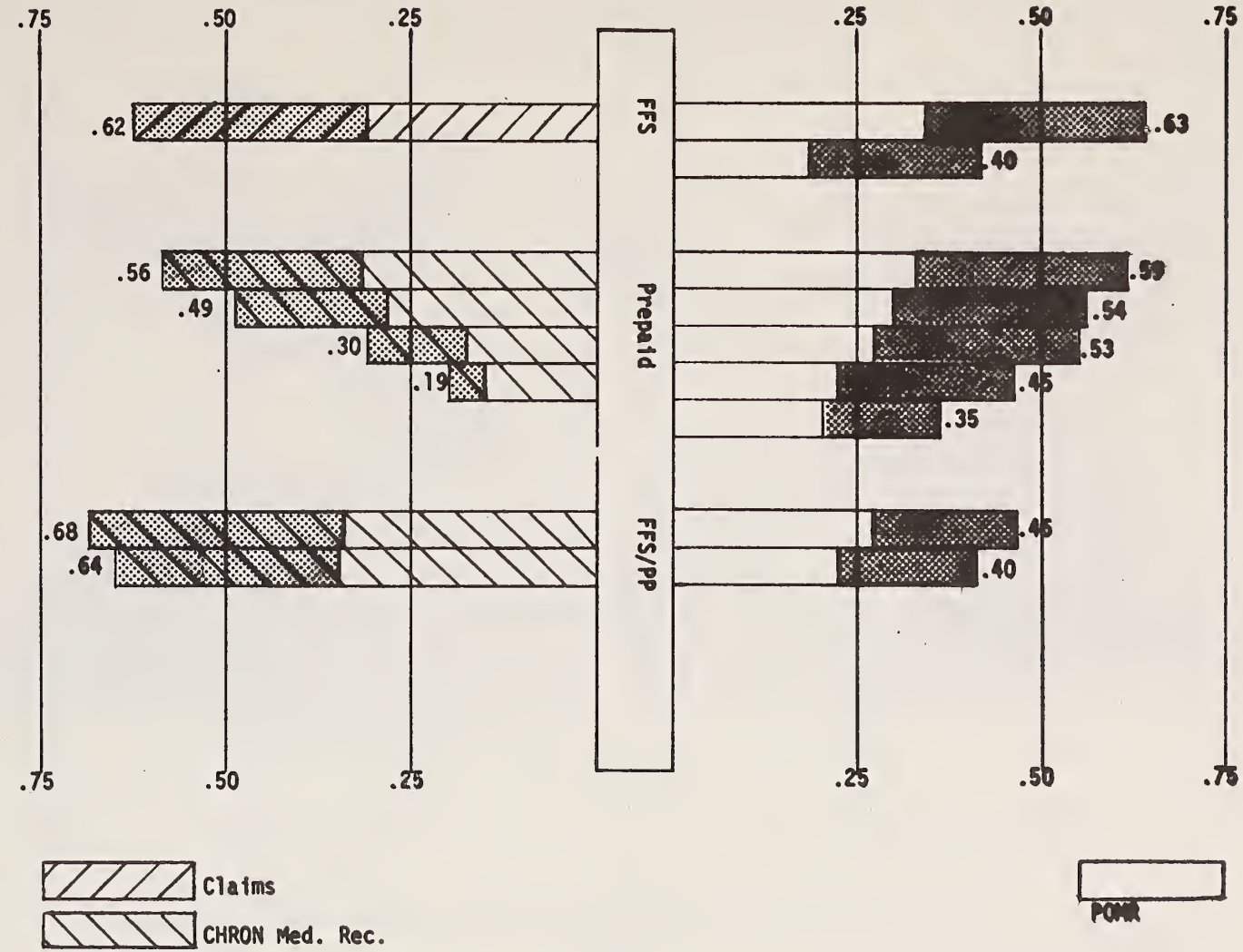


FIGURE P

TOTAL SCORES BY TYPE OF QA FUNDING AND LENGTH OF ACTIVITY

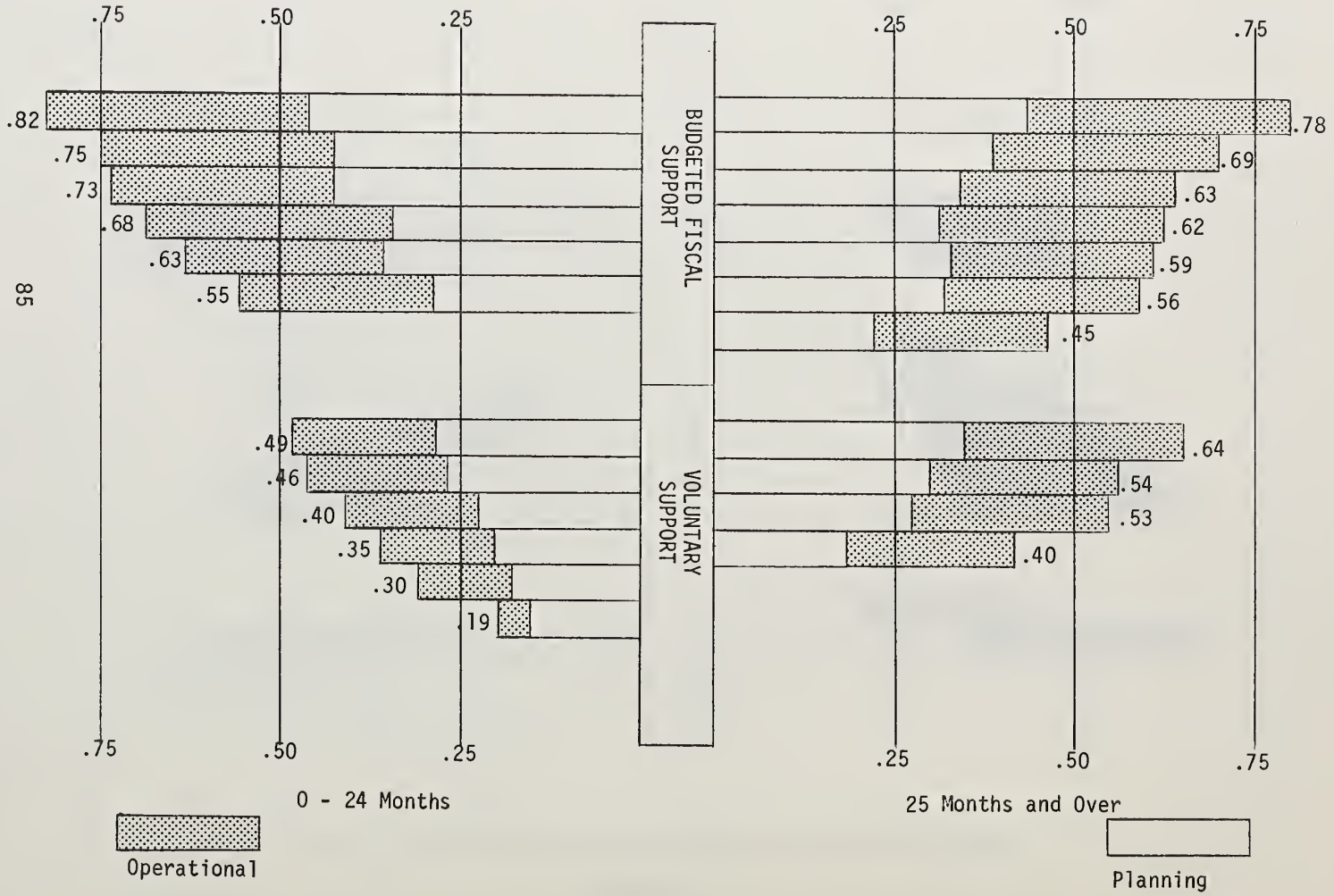


FIGURE Q

TOTAL SCORES BY REVIEW TYPE BY LENGTH OF ACTIVITY

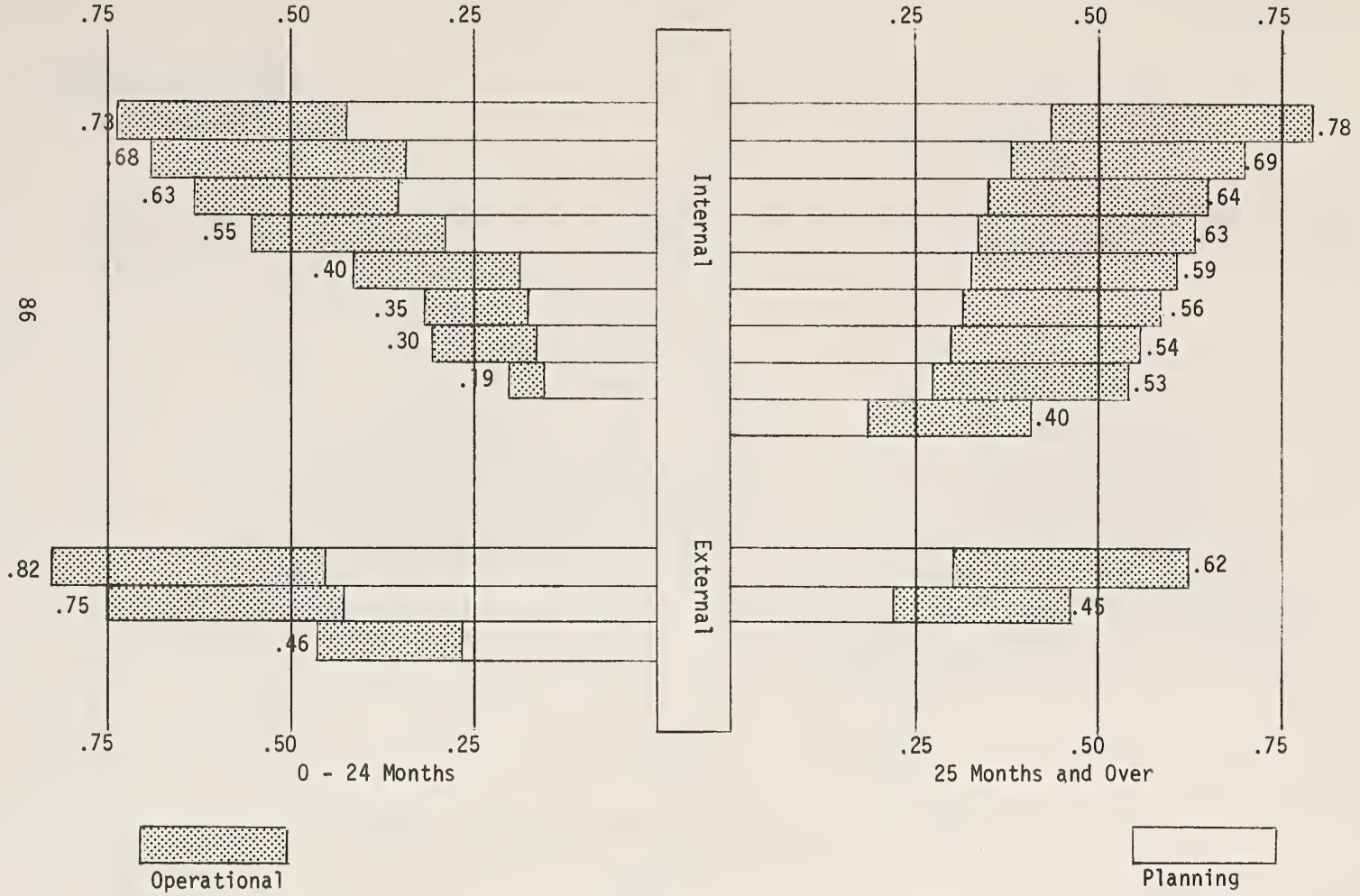


FIGURE R

TOTAL SCORES BY REVIEW TYPE BY QA FUNDING SOURCE

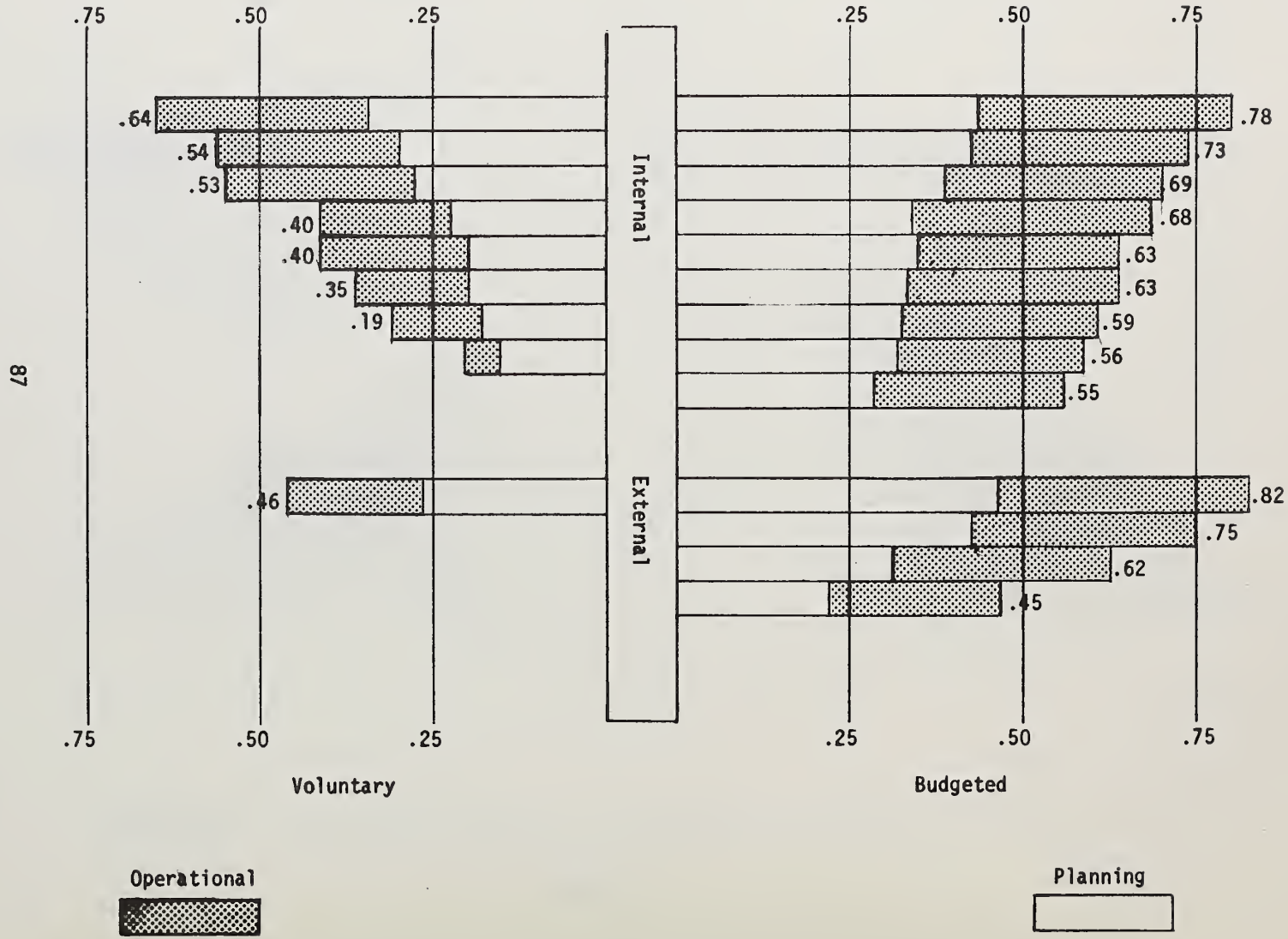


FIGURE 5

TOTAL SCORES BY DATA SOURCE BY LENGTH OF ACTIVITY

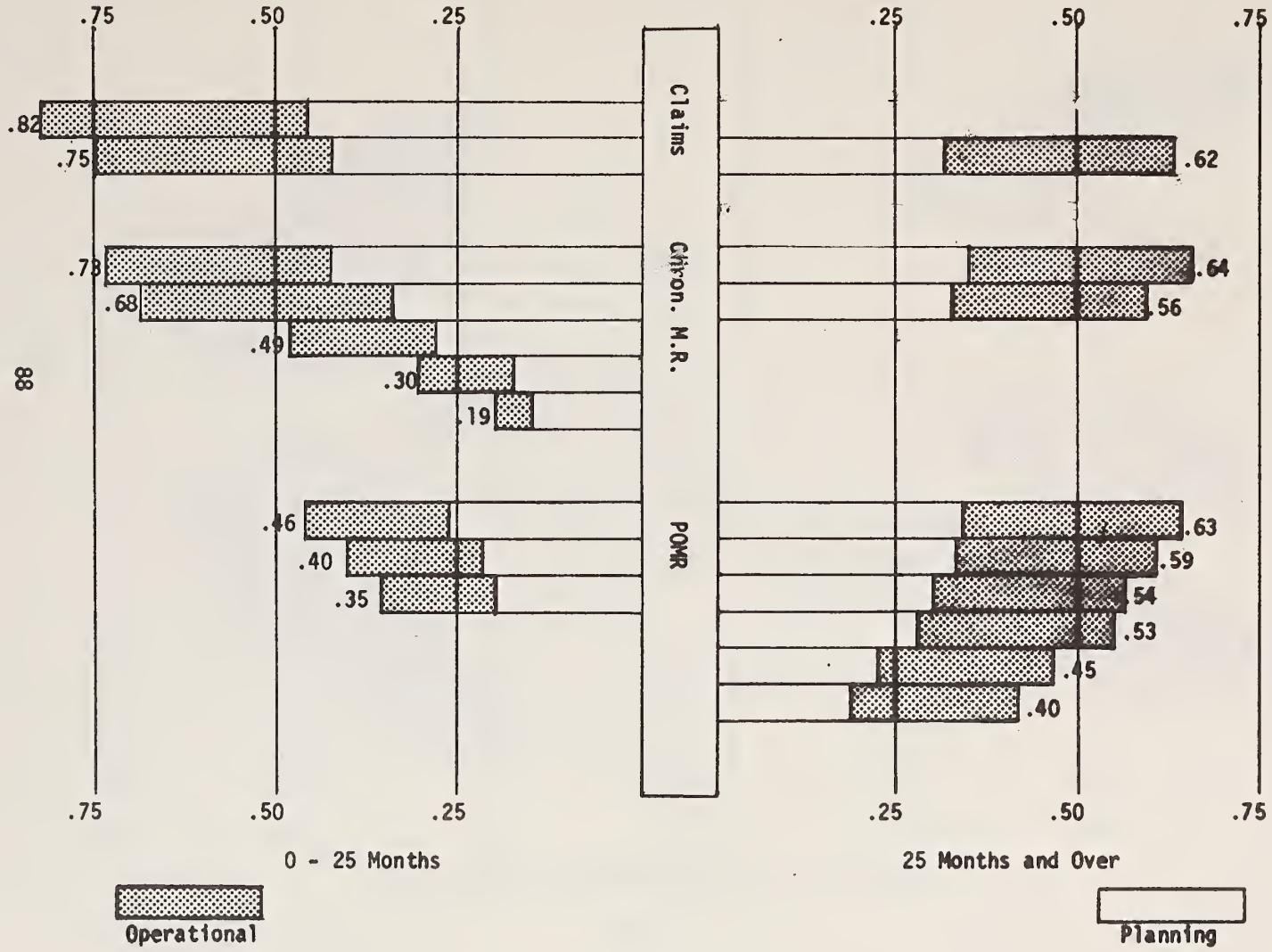


FIGURE T

IQAP SCORES BY DATA SOURCE AND FUNDING SUPPORT

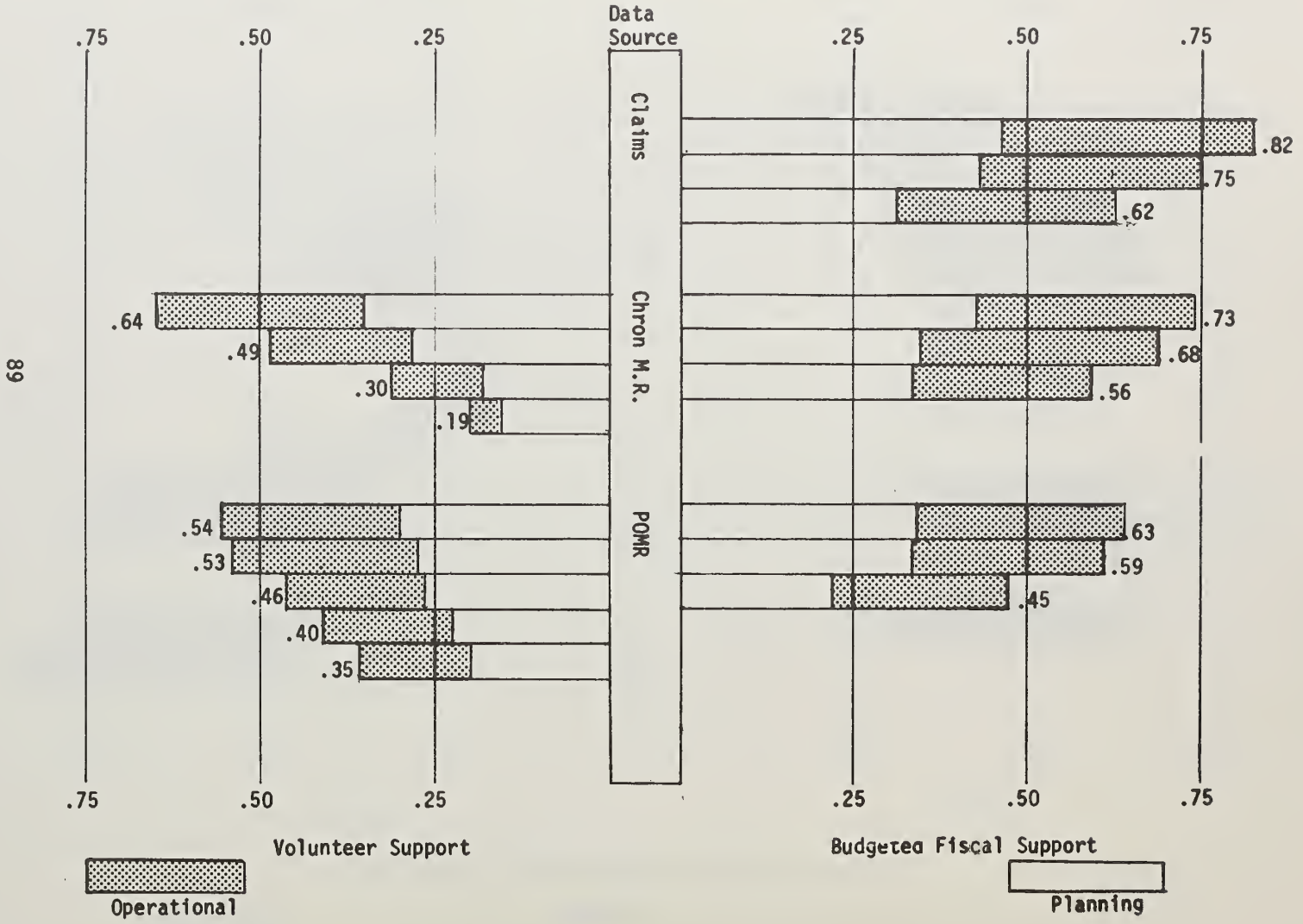
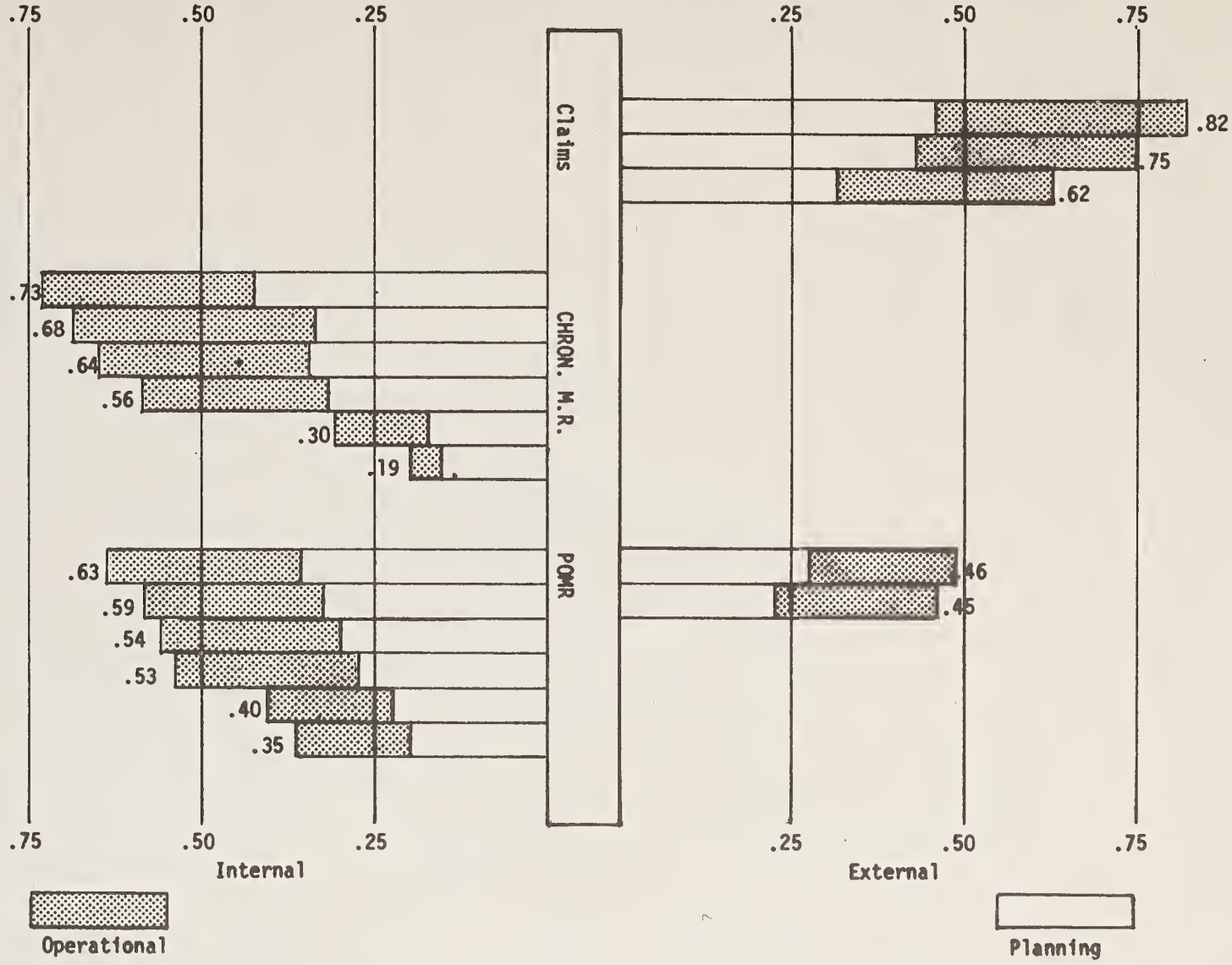


FIGURE D

TOTAL SCORES BY DATA SOURCE BY REVIEW TYPE



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