REPORT OF THE
VIRGINIA HEALTH SERVICES COST REVIEW COUNCIL

THE IMPLEMENTATION OF A METHODOLOGY TO IDENTIFY THE EFFICIENT PROVIDERS OF HEALTH CARE IN VIRGINIA

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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During 1991, the Virginia Health Services Cost Review Council's (VHSCRC) then current methodology came under criticism. That methodology reviewed the aggregate charges of facilities to determine if they were reasonably related to aggregate costs.

At its 1992 Session, the General Assembly enacted Senate Bill 518, which in part contained a requirement for a new methodology to measure efficiency and productivity in health care institutions reporting to the VHSCRC.

The Two Clause in SB 518 directed the VHSCRC to submit a preliminary report by December 1, 1993 and a final report by no later than October 1, 1994. These reports were to address the effectiveness of the efficiency and productivity measurements in controlling health care costs.

The VHSCRC adopted a methodology to measure efficiency and productivity in December 1992, and emergency regulations were issued effective January 1, 1993. The 1993 report issued in response to SB 518 documented the success of the VHSCRC in developing the methodology to measure efficiency and productivity and in conducting early implementation. This 1994 document provides a further progress report on implementation of the methodology.

In its 1993 SB 518 report, the VHSCRC presented a plan for evaluating the effectiveness of the efficiency and productivity methodology. Essentially, this VHSCRC plan calls for computing the annual rates of growth in Virginia's health institution costs before and after implementation of the methodology to measure efficiency and productivity. These rates of cost growth can be compared with one another, and with similar rates in other states and in the nation as a whole.

When the VHSCRC released its 1993 SB 518 report, it anticipated that the first efficiency and productivity information would be released in the summer of 1993. The release date was delayed until late fall of 1994 in an effort to ensure the integrity of the data and develop useful means of displaying and explaining the findings. Because 1993 was the first year in which hospitals had to provide such information as hospital-wide acuity (case-mix index), it was particularly important to take the time necessary to ensure the data's accuracy.

The first information on the early response to publication of the efficiency and productivity measures will be available in the fall of 1994. Fall 1994 findings, however, will reflect only providers' reactions to publication, not detailed data analysis.

Moreover, as the 1993 SB 518 report indicated, several years of post-implementation data will be needed for reliable judgement of the methodology's effectiveness to be made. Consequently, the VHSCRC recommends that the methodology be judged at three- and five-year intervals. If approved, this means that reports will be submitted to the Governor, the Joint Commission on Health Care, the General Assembly, and the Virginia Health Planning Board in 1997 and again in 1999.

It is important to bear in mind that this methodology is in an early stage of development; its unique approach to cost containment is being developed under contract with the Williamson Institute of the Department of Health Administration at the Medical College of Virginia. More sophisticated measures of efficiency drawn from the patient-level database will next be incorporated. Measures of quality as well, will be included. Each of these enhancements to provide more information to the market place should strengthen the methodology.

II. INTRODUCTION

Skyrocketing health care costs are taking their toll on individuals, businesses, and governments. In the past two decades, health care costs have absorbed much of the growth of employees' real compensation, have made it difficult for businesses to compete in the global market place, and have put pressure on the budgets of federal, state, and local governments (Cowan and McDonnell, 1993).

The statistics are sobering. For example, the U.S. Commerce Department (1994) estimates that U.S. health care costs rose by approximately 12 percent in 1993, to reach $942.5 billion, or 14 percent of this nation's gross domestic product (GDP). Spending on health care is expected to exceed $1 trillion in 1994. If current laws and practices continue, health expenditures in the U.S. will reach $1.7 trillion by the year 2000, an amount equal to 18.1 percent of the GDP (Burner, Waldo, and McKusick, 1992).

The Virginia statistics are equally troubling. Between 1980 and 1991, state spending for hospital care, physician services, and prescription drugs rose an average of 11.6 percent annually. This statistic compares unfavorably with the national 10.5 percent annual increase for the same goods and services (Levit, Lazenby, Cowan, and Letsch, 1993).

Escalating health care costs sparked the national debate on health care reform and caused states to seek solutions on their own. In Virginia, concern over the rapidly increasing burden on individuals, businesses, and the state budget (primarily through rising Medicaid expenditures) led the 1992 General Assembly to enact Senate Bill (SB) 518 and Senate Joint Resolution (SJR) 118, which were directed at containing increases in health care costs. The legislation and the consequent action by the Virginia Health Services Cost Review Council (VHSCRC) are described herein.

III. BACKGROUND

During 1991, VHSCRC's then current methodology had come under criticism. That methodology reviewed the aggregate charges of facilities to determine if they were reasonably related to aggregate costs.

At its 1992 Session, the General Assembly enacted SB 518, which in part contained a requirement for a new VHSCRC methodology:

> "By January 1, 1993, the Council shall promulgate regulations establishing a methodology for the review and measurement of the efficiency and productivity of health care institutions. The methodology shall provide for, but not be limited to, comparisons of a health care institution's performance to national and regional data.

The Council may promulgate different methodologies and reporting requirements for the assessment of the various types of health care institutions which report to it." (See § 9-161.1 of the Code of Virginia (1992), included as SB 518 in Appendix A.)

The Two Clause in SB 518 required the VHSCRC to submit a preliminary report by December 1, 1993 and a final report by October 1, 1994. Both reports were to address the effectiveness of the efficiency and productivity measurements in controlling health care costs. Further, the Council was directed to plan for a mandatory rate-setting mechanism if the measurements were found to be ineffective in controlling health care costs.

As required, the preliminary report was submitted in 1993. The current report is submitted to fulfill the requirement for a further report by October 1, 1994. Because the first data on efficiency and productivity will not be publicly available until the late fall of 1994, a final evaluation now of the methodology's effectiveness would be inappropriate. Thus a progress report is here provided.

Senate Joint Resolution 118 (1992) further required the VHSCRC to develop a methodology that would improve the identification of the most efficient providers of high-quality care within the Commonwealth. In 1992 the VHSCRC issued a preliminary report in response to SJR 118; the new methodology meets the resolution's requirement. A copy of SJR 118 appears in Appendix B.

IV. REVIEW OF THE METHODOLOGY ADOPTED TO MEASURE EFFICIENCY AND PRODUCTIVITY

The VHSCRC adopted a methodology to measure efficiency and productivity in December 1992, and emergency regulations were issued effective January 1, 1993. A basic description of the methodology follows.

A. Development of the Methodology

Following the enactment of SB 518, the VHSCRC contracted with the Williamson Institute and McManis Associates to develop a new methodology. McManis Associates remained with the project only a few months, but the Williamson Institute consultants have been long-term partners in developing the methodology. The Williamson Institute, located in the Department of Health Administration on the Medical College of Virginia Campus of Virginia Commonwealth University, brought the intellectual resources of the University to the development process.

The VHSCRC established two work groups, one for hospitals and one for nursing homes, to assist the Williamson Institute. In addition to hiring consultants and establishing work groups, the VHSCRC also developed a list of external constituency groups to periodically review the evolving methodology. As the methodology developed, VHSCRC staff and members of the Williamson Institute also sought the views of representatives of the Department of Health and the Department of Medical Assistance Services. The end result was that significant contributions were solicited and provided by a wide spectrum of people and organizations concerned with and affected by the new methodology.

B. Conceptual Framework for the Methodology

Government can address shortcomings in the market for health services in two ways: Policy makers can intervene either to regulate the market or to promote competition among the providers. If they choose the latter course, policy makers can stimulate price competition to exert downward pressure on costs.

The VHSCRC's new methodology aims to stimulate competition within the markets for hospital, nursing home, and ambulatory surgical services by making information on efficiency and productivity in these facilities more available to consumers. Concurrently, Virginia is developing a patient-level database that when fully operational will yield additional measures of hospital quality as well as of efficiency. The eventual combination of efficiency and productivity information with measures of quality should empower consumers to shop for the best value.

The consumers targeted by the new methodology include health maintenance and preferred provider organizations, businesses, health care coalitions, government, and major self-insured employers. Providers, too, will find many uses for the information.

C. General Characteristics of the Methodology

A unique methodology was developed to measure and report the relative efficiency and productivity of Virginia's acute care hospitals, rehabilitation hospitals, psychiatric hospitals, ambulatory surgical hospitals, and nursing homes. The methodology was designed to: (1) report relevant and comprehensive measures of institutions' efficiency and productivity; (2) ensure that the information provided is understandable; (3) allow for benchmarking and the comparison of facilities; and (4) make timely information available to the market.

First, general categories of efficiency and productivity were identified; then specific measures in each general category were defined.

To ensure that information is easily understood by potential users, an effort was made to select the least complex and most easily understood method of identifying efficient providers of health care. Ratio analysis was chosen. This method uses ratios of inputs and outputs to measure efficiency and productivity. To meet the different needs of consumers of hospital and of nursing home services, specific ratio measures, the filing forms to produce the data for these measures, and the schedules for filing were customized.

The VHSCRC intends to compare the performances of peer institutions on both individual indicators and overall performance. Comparisons will allow for performance benchmarking. Benchmarking, in turn, will provide incentives to improve efficiency and productivity.

The methodology establishes the means for health care institutions to submit data electronically. Then, adding an electronic data dissemination system for consumers will ensure the timely availability of the information.

D. Measuring Hospital Efficiency

1. Data Collection

All hospitals must submit six annual filings with the VHSCRC: an Annual Budget Summary Filing, four Quarterly Historical Performance Filings, and an Annual Historical Performance Filing.

The Annual Budget Summary Filing contains financial and statistical information to assist purchasers, state policy makers, and other consumers in developing projections of future hospital charges and costs. Each hospital submits this filing to the VHSCRC at least 30 days before the beginning of its fiscal year.

In addition to the Annual Budget Summary Filing, each hospital submits four Quarterly Historical Performance Filings. These reports give consumers the up-to-date information they need to make informed purchasing decisions. The quarterly filings contain financial and statistical information similar to that submitted on the budget filing. Quarterly Filings are submitted on the basis of each hospital's fiscal year and are due within 45 days after the end of each quarter.

Finally, each hospital submits an Annual Historical Performance Filing as well as audited financial statements. The historical filing is the basis for the evaluation of relative efficiency and productivity. The Annual Historical Performance Filing and audited financial statements are submitted to the VHSCRC within 120 days after the close of each hospital's fiscal year.

In developing new filing forms, an effort was made to reduce the reporting burden on providers, by reducing the number of data elements collected. The Williamson Institute estimates that hospitals now provide approximately 67 percent fewer data items than they did under the previous methodology.

2. Efficiency Indicators

The methodology initially adopted by the VHSCRC to measure efficiency and productivity included twenty-six ratios for acute care hospitals, twenty-five ratios for rehabilitation hospitals, and two sets of twenty-four indicators each for psychiatric hospitals and ambulatory surgical hospitals. The number of indicators for each group of facilities has now been reduced, as explained here in Section VI.A.1. Appendix C contains the revised sets of indicators and their definitions.

E. Measuring Nursing Home Efficiency

1. Data Collection

Because the market for nursing home services appears less volatile than the market for hospital services, nursing homes are provisionally exempt from quarterly historical reporting. A nursing home submits only two filings per year: an Annual Budget Summary Filing and an Annual Historical Performance Filing.

The Annual Budget Summary Filings provide financial and statistical information to assist purchasers, state policy makers, and other consumers in developing projections of future nursing home charges and costs. Each nursing home submits this filing to the VHSCRC at least 30 days before to the beginning of its fiscal year.

In addition, each nursing home submits an Annual Historical Performance Filing, which is used to collect audited financial and other information as described below. These data are the basis for the evaluation of relative efficiency and productivity. The Annual Historical Performance Filing is submitted to the VHSCRC within 120 days after the close of each nursing home's fiscal year.

As with hospitals, an effort was made to reduce the reporting burden on providers by reducing the number of data elements collected. The Williamson Institute estimates that nursing homes now provide approximately 62 percent fewer data items than they did under the previous methodology.

2. Efficiency Indicators

The methodology initially adopted by the VHSCRC included seventeen ratios to measure efficiency and productivity. As for

hospitals, the number of indicators has been reduced. Appendix C contains the revised set of indicators and their definitions.

F. Identification of Efficient Health Care Institutions

The methodology groups similar health care institutions (e.g., all acute care hospitals or all nursing homes) into geographical peer groups and ranks each one in relation to other institutions within its peer group. In this way, benchmarks can be established, and administrators at one institution can measure their performance against that of their peers.

To determine overall efficiency, each acute care hospital and each nursing home is ranked on each of their respective indicators with a quartile score. Each quartile represents 25 percent of institutions within the peer group. Each health care institution is given a score of 1, 2, 3, or 4 on each indicator, with 1 indicating a ranking in the top quartile (25 percent) and 4 in the lowest. Each facility's quartile scores are summed over all indicators. The sum is divided by the number of indicators to get an average quartile score. The top performers are selected by using the average quartile scores to identify the top 25 percent of institutions in each peer group. Appendix D may be consulted for examples of the ranking procedures used for acute care hospitals and nursing homes.

Psychiatric, rehabilitation, and ambulatory surgical hospitals are not ranked, because adequate case-mix adjustors are not available for these groups of facilities. Nonetheless, as shown in the figures below, the ranking methodology encompasses health care institutions that account for 93.7 percent of net charges and 93.6 percent of costs from all institutions reporting to the VHSCRC in fiscal year (FY) 1992.

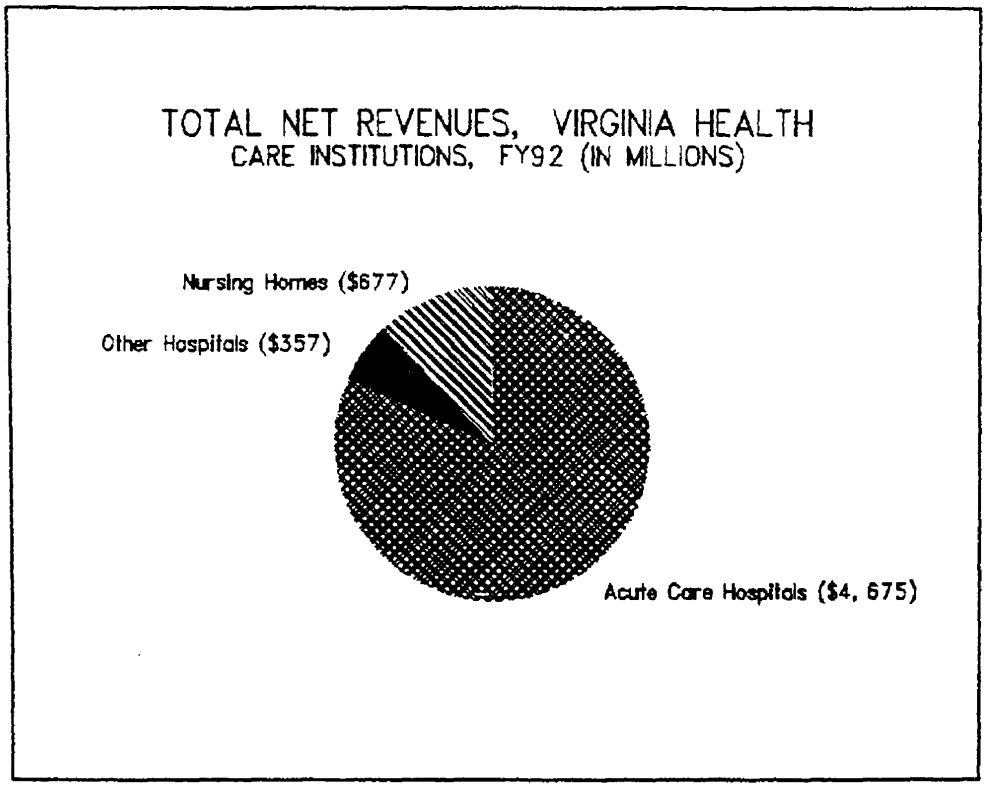

Figure 1A

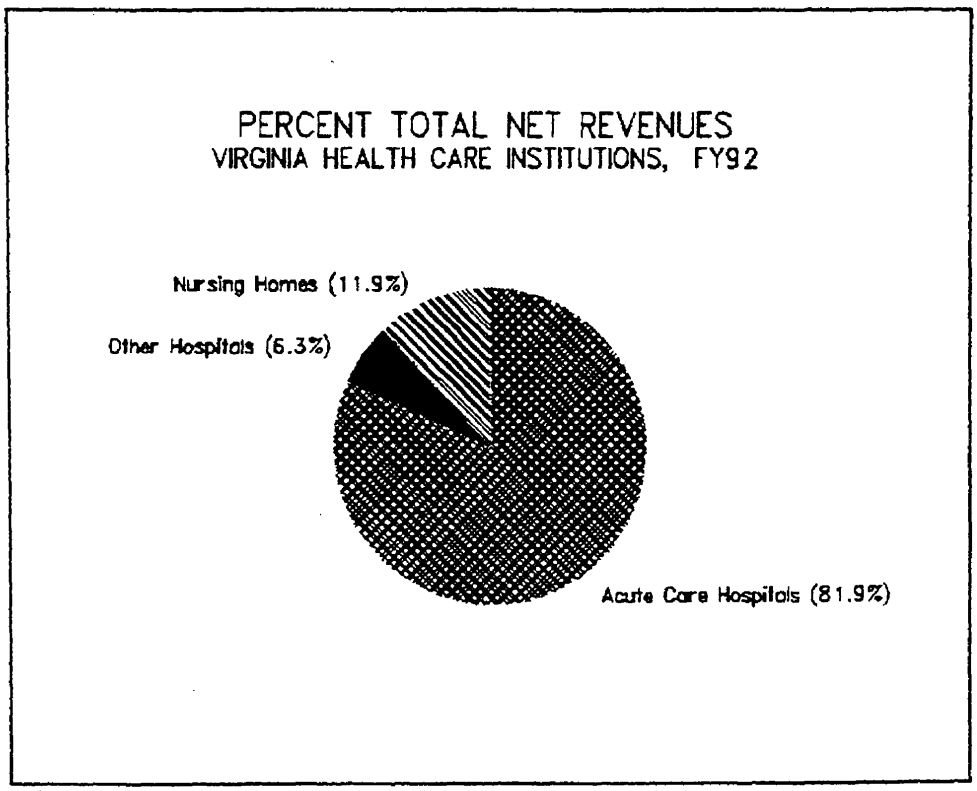

Figure 1B

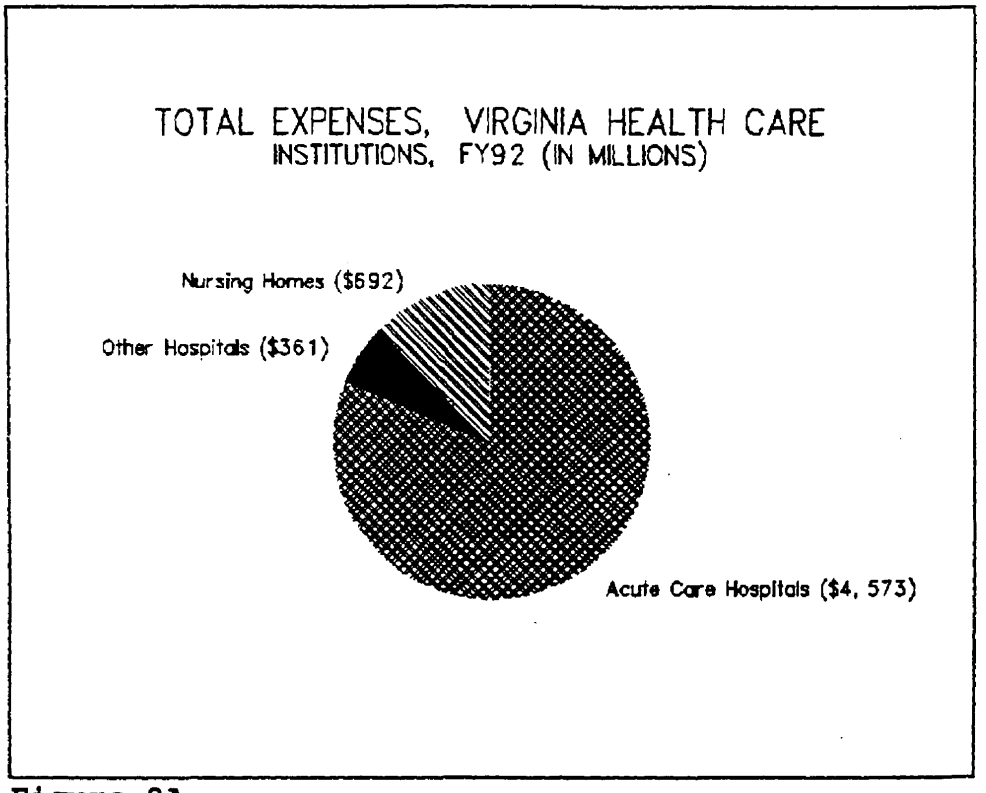

Figure 2A

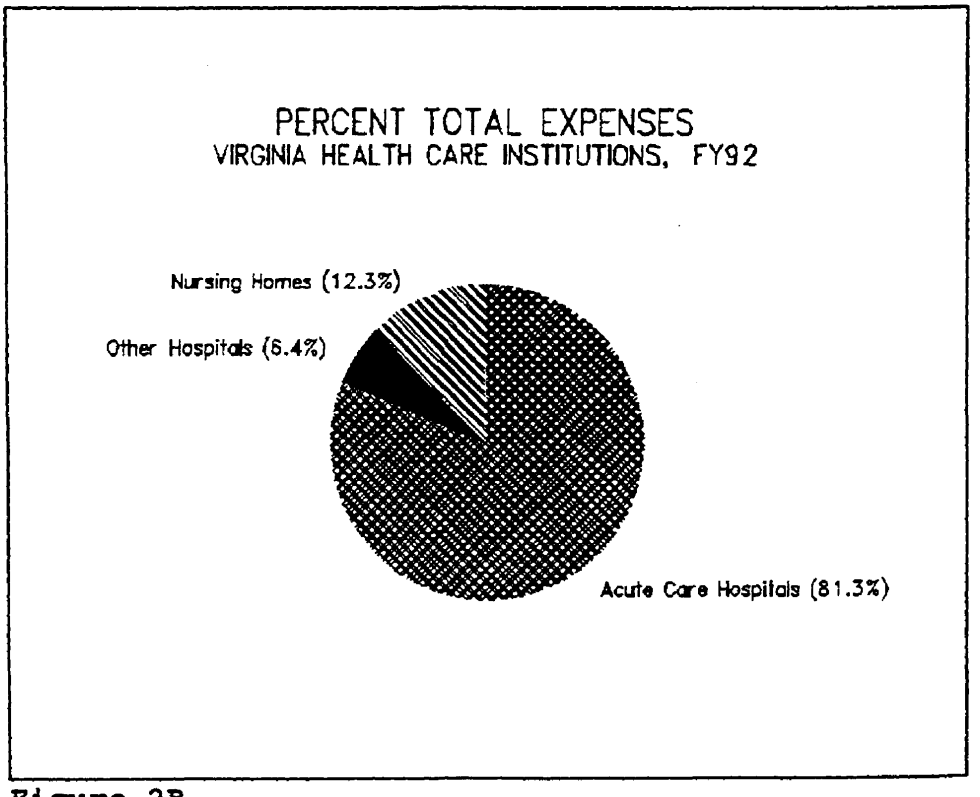

Figure 2B

G. Comparisons with Other States and the Nation

The ratios selected to measure the relative efficiency and productivity of Virginia acute care hospitals and nursing homes now contain enhancements that are expected to improve the accuracy and usefulness of the information. An example of one such improvement is the use of a hospital-wide case-mix index to adjust for the varying resource consumption of patients with different illnesses. Unfortunately, similar data are not available for acute care hospitals outside of Virginia. Thus it is not possible to compare the case-mix-adjusted performance of Virginia acute care hospitals with that of national and regional groups of hospitals. The VHSCRC will therefore continue to use more standard measures when comparing the performance of the Virginia hospital and nursing home industries with that of similar industries in other states and in the nation.

H. Electronic Data Collection and Dissemination System

An electronic data collection and dissemination system is essential to the usefulness of the methodology for measuring efficiency and productivity. An electronic system is necessary to ensure that data is promptly reviewed and analyzed, as well as disseminated to the buyers of health care; for markets to function efficiently, information must be timely.

The first version of a data collection software was distributed to providers in September, 1993. The software, EPICS, was developed by Pinkerton Computer Consultants with guidance from the provider communities. EPICS is an acronym for "Efficiency and Productivity Information Collection System." Providers began using the software to prepare annual budget filings for fiscal years beginning on or after December 1, 1993, annual historical filings for fiscal years ending on or after June 30, 1993, and quarterly filings for quarters ending on or after September 30, 1993.

EPICS version 1 contained all filing forms in use during calendar year 1993: the hospital budget, quarterly, and historical forms; the ambulatory surgical hospital budget, quarterly and historical forms; and the nursing home budget and historical forms.

EPICS, a stand-alone, menu-driven program, is distributed free of charge to all providers who submit filings to the VHSCRC. Providers do not need to purchase or be familiar with any particular computer spreadsheet or database program. The minimum hardware needed to run the program is an IBM-compatible PC XT with 640 K of RAM, a 20 MB Hard Drive, and CGA Monitor. However, the program runs more quickly with an IBM-compatible PC 80386SX chip. A system with a VGA monitor, at least 100 MB Hard Drive, and 1 MB of RAM is preferred over the more basic hardware just described. The software is available on 3 1/2" or 5 1/4" disks that use either standard memory or extended memory.

Besides running on fairly basic IBM-compatible hardware and requiring no purchase of software or acquisition of special computer skills, EPICS has other attributes. It automatically computes data elements without the user writing formulas. It also includes an "expert system" of internal checks to prevent certain data entry and reporting mistakes. A security system is incorporated to protect the integrity of each provider's data. Providers who already have their data in electronic form need not reenter the data into EPICS. They can use an import utility incorporated into the software. Similarly, an export utility is available to export EPICS data into spreadsheet or database files. Regardless of whether providers import or key data into the system, EPICS should speed the preparation of filings. Several standard reports are also available to providers.

EPICS comes with a hard copy manual. All filing form instructions and information included in the manual are also available in an on-line help directory. Although the software was designed to be "user friendly," the VHSCRC staff conducted familiarization sessions across the state to demonstrate the software and answer providers' questions.

EPICS allows for efficient compiling of data from hundreds of providers into larger databases. These databases can be accessed by consumers and also used internally to produce reports.

V. GOALS FOR 1993/1994

During 1993 and 1994 the VHSCRC set several goals for itself:

(1) To continually examine and refine the methodology to measure efficiency and productivity in Virginia health care institutions;

(2) To work cooperatively with provider groups;

(3) To improve the electronic data collection system and develop an electronic data dissemination system.

(4) To ensure the accuracy of data used to measure efficiency and productivity;

(5) To format the pages and publish the efficiency and productivity information in the Annual Report; and

(6) To educate consumer groups about the availability of efficiency and productivity information.

VI. PROGRESS TOWARD MEETING GOALS

A. EXAMINING AND REFINING THE METHODOLOGY

1. Goal: To continually examine and refine the methodology to measure efficiency and productivity in Virginia health care institutions.

During 1993/1994, the methodology was tested to determine:

(1) If the fundamental assumptions underlying the methodology for measuring efficiency and productivity are sound;

(2) If acute care hospital rankings are sensitive to average length of stay (ALOS);

(3) If some facilities by virtue of certain characteristics (e.g. being rural or urban) fare better or worse systematically; and

(4) If the indicators are meaningful to potential users and contribute to the methodology.

Each test and the results are described below.

In sum, the tests led to a reduction in the number of indicators used for each category of health care institution to measure efficiency and productivity. Acute care hospital indicators were reduced from 26 to 18. Nursing home indicators were reduced from 17 to 13. Because psychiatric, rehabilitation and ambulatory surgical hospitals are few in number and are not ranked in the methodology, only minor changes were made to their lists of indicators; these changes were informed by findings from the acute care hospital field testing. Rehabilitation hospital indicators were reduced from 25 to 24. Psychiatric and ambulatory surgical hospital indicators were each reduced from 24 to 23. A summary of the changes, along with comments, can be found in Appendix E.

2. Testing the Fundamental Assumptions of the Methodology

The ranking of acute care hospitals and nursing homes is based on the assumption that significant variation exists among these facilities on each indicator and on the overall facility ranking. The first is called "indicator variance," and the second is called "facility variance."

The methodology divides acute care hospitals, as well as nursing homes, into four quartiles on each of the indicators. Institutions in the first quartile are assumed to be more efficient

than those in the second, third, and fourth quartiles. If variances are low, however, health care institutions in the first quartile may not be significantly better than health care institutions in the second, third, or fourth quartiles. In that situation ranking consists of artificially creating a distinction without a difference.

To test for "indicator variance," statistical analysis was performed on available data. Sufficient variance was found to exist on all hospital indicators. Insufficient variance was found on the nursing home indicators of "staffed beds occupancy" and "licensed beds occupancy," because of the high occupancy rates in virtually all nursing homes in the state. As a result, the VHSCRC removed these two low-variance nursing home indicators from the methodology.

The mean rank (i.e., the "efficiency and productivity score") of a health care institution is calculated by averaging the quartile scores over all the indicators. If health care institutions are consistently high or low performers over all criteria, mean scores will show high variance among institutions. On the other hand, if the performance of institutions is mixed across criteria, the average rank of institutions may be very similar and the mean score may show low variance among institutions.

The assumption of "facility variance," which allows the VHSCRC to identify high performing institutions, was tested using available data and found to be valid. In general, the distribution of mean scores was found to resemble the bell-shaped normal curve. This test was performed by examining state-wide variance among facilities. The number of filings available was not sufficient to divide institutions into their regional groupings and test for facility variance within regions.

3. Testing the Sensitivity of Acute Care Hospital Rankings to Average Length Of Stay

Most of the originally adopted acute care hospital efficiency and productivity indicators are based on either adjusted discharges or adjusted patient days as the measures of hospital output. The primary difference between the two measures of output is the average length of stay (ALOS). ALOS has a direct impact on the number of patient days produced by a hospital, so indicators using adjusted patient days could be affected by longer lengths of stay, and hospitals with longer stays might receive more favorable ratings. This would be contrary to the VHSCRC's intent of rewarding health care institutions for efficient and productive behavior.

The indicators incorporating adjusted patient days were in fact found to be negatively correlated with the other indicators,

meaning that they do reward inefficient behavior with better scores. Consequently, the adjusted-patient-day indicators were judged to be inappropriate and were removed. Case-mix-adjusted ALOS was substituted; this measure is calculated using both a hospital's ALOS and its case-mix index, and measures how well a hospital manages patient days. A full definition is provided in Appendix C.

4. Sensitivity of Rankings to Various Hospital Characteristics

Another concern was that better or worse overall efficiency and productivity scores may be related to hospital characteristics that at least in the short run are not readily amenable to manager intervention. Tests were run to determine if any of the following characteristics are related to the scores a hospital is likely to receive: (1) case-mix, (2) volume, (3) rural or urban location, (4) fiscal year end, and (5) for-profit or not-for-profit status.

Findings show no systematic association between efficiency and productivity scores and any of the above characteristics with the exception of location. With regard to the latter, rural hospitals were found to perform better than urban hospitals do. This is no doubt related to the lower costs and charges traditionally found in rural areas.

5. Resolution of Other Problems

Testing of the methodology was conducted with the cooperation of hospital and nursing home administrators, who identified ways to improve the indicators. As a result, "adjusted patient days per full-time equivalent" and "adjusted admissions per full-time equivalent" were changed to "full-time equivalents per adjusted occupied bed" and "paid hours per adjusted admission," respectively. The latter indicators are considered to be more familiar and more useful to management in measuring utilization.

The mathematical formula for the calculation of the "special services utilization" indicator was changed after the original formula was found to be impractical. The original formula measured the utilization of each of ten special services in comparison to state Certificate of Need standards. Hospitals were thereafter compared with one another on each of the ten utilization ratios, receiving ten quartile ranks. The quartile ranks were averaged to get the final measure of overall "special services utilization." For some services, such as magnetic resonance imaging (MRI), there were not enough hospitals offering the service in a region to lead to meaningful quartile scores. As a result, the formula has been changed so that a hospital's utilization on each of the ten special services is now measured in comparison to

state Certificate of Need standards, and the resulting ratios are averaged to yield the final measure of overall utilization of the facility's special services.

For similar reasons, the formula for the calculation of "cash debt coverage" was also changed. The original formula included "cash flow from operations" in the numerator and "current debt service" in the denominator. "Cash flow from operations" was net of interest expense. Interest has been added to the numerator so that funds available to pay principal and interest are considered. The revised formula is more familiar and meaningful to managers.

The correlations among "operating income per adjusted admission," "total margin," and "return on assets" were found to be high. This means the three indicators are measuring very similar concepts. While profitability is important, including three measures of this aspect of performance was excessive. "Operating income per adjusted admission" was therefore deleted.

Finally, "replacement viability" was deleted from the indicator list, because data for its construction was difficult to obtain. In particular, "unrestricted investments," a component of this indicator, was difficult to measure at the hospital level in for-profit hospital systems.

6. Future Activities

The VHSCRC is planning to enhance the methodology for measuring efficiency and productivity by using patient-level data that is expected to become available for the first time in 1994. Patient-level data provides unique statistical power to understand how hospitals conduct patient care. This data set can be used to create several indicators of efficiency and productivity by Diagnosis Related Groups and Major Diagnostic Categories. The patient-level data can also be used to develop risk-adjusted outcome indicators of hospitals' quality of care. This is in keeping with the SJR 118 mandate to identify the "most efficient providers of high quality care within the Commonwealth." (See Appendix B for a copy of the bill.)

B. WORKING COOPERATIVELY WITH PROVIDERS

1. Goal: To work cooperatively with provider groups

From the beginning, drawing upon the expertise of providers who are affected by the methodology has been an important part of its development. During 1993/1994, the VHSCRC has continued to offer opportunities for providers' comments and recommendations.

2. Activities

All changes in hospital and nursing home indicators resulting from field tests were discussed with facility administrators or with representatives from the Virginia Hospital Association (VHA) and the Virginia Health Care Association (VHCA). The most recent such meetings were held in February, 1994.

To keep administrators appraised of their performance and solicit their assistance in ensuring the validity of the data, several informational packages were mailed to each institution. In May, hospital administrators received a spreadsheet showing all hospitals' previous-year Medicare case-mix indices and the hospital-wide case-mix indices that they had provided for use in calculating many of the ratio indicators. Administrators were asked to review this information for accuracy and notify the VHSCRC of any corrections that were needed. Also in May, each facility administrator was given the data elements and the calculated indicator ratios for the facility. One result of the latter mailing was the realization that costs and charges for hospital-paid physicians had an unintended impact on hospital rankings. In June, hospital administrators were given the opportunity to provide additional information about these costs and charges so that the problem could be corrected.

The end results of this ongoing dialogue with facility providers and their trade associations have been several clarifications or corrections to the calculation of indicators. These were largely technical and involved such issues as the handling of gains and losses on debt refinancing, and the reporting and inclusion of use taxes in the calculation of "community support provided."

Besides these interactions, the VHSCRC has worked with provider groups in numerous other ways, among them providing information for inclusion in the VHA and VHCA newsletters and responding to letters from concerned hospital and nursing home administrators. Representatives of the VHA and VHCA frequently attend meetings of the VHSCRC.

C. IMPROVING THE ELECTRONIC DATA COLLECTION SYSTEM AND DEVELOPING AN ELECTRONIC DATA DISSEMINATION SYSTEM

1. Goal: To improve the electronic data collection system and develop an electronic data dissemination system.

The first version of the electronic data collection system, EPICS, was released in September, 1993; the second version followed in March, 1994. Development of the electronic data dissemination system has been delayed until agency resources are available to support that activity.

2. Improvements in the Data Collection System

The second version of EPICS resolved some programming errors found in the first version. Additional filing forms were added as well. These include specialized budget, quarterly and historical filing forms for both psychiatric and rehabilitation hospitals. A commercial diversification survey (CDS), which is due at the same time as the annual historical filing, was also included. A productivity report, which includes the calculation of indicators, was added for nursing homes. Previously, this was available only for hospitals. Finally, additional edit checks, and an exception report were added to the expert system.

As part of the expert system, the software performs checks between different filing schedules. One schedule must agree with appropriate other schedules or an "exception" is noted. The software has a feature that immediately notifies the individual entering data when discrepancies occur. If corrections are not made, the discrepancy is noted in the "exception report." There are other internal checks as well. Virtually every data element is verified and tested for reasonableness in terms of the normal relationships that exist between the data elements. When data elements do not pass these checks, that also is noted in the "exception report." Hospital and nursing home administrators can conduct self-audits by printing the exception reports. They can then make corrections or note in the electronic memo pad an explanation for any unusual data relationships.

D. ASSURING THE ACCURACY OF THE DATA

1. Goal: To assure the accuracy of data used to measure efficiency and productivity.

All historical filings that will be included in the Annual Report for fiscal years ended on or before December 31, 1993 have been received and are now being checked for accuracy according to an established three-step review process.

2. Review Process

The complete process comprises: (1) checking the filing for internal accuracy, using the EPICS software expert system exception report, (2) verifying appropriate lines from the filing to the audited financial statements, and (3) checking selected data elements against similar data filed with other agencies. At each step, staff may consult with the filing health care institution for clarification.

The EPICS expert system has already been described. Data that can be verified through reference to the audited financial statements include line items on the income statement, balance sheet, changes in fund balance, and cash flow statement. Data that

can be checked by reference to other agency publications include such items as the number of licensed beds.

Besides the general procedure for testing accuracy, one additional check is performed. The hospital case-mix index is an important component of many of the hospital indicators. This is a self-reported measure, and there is no objective source to verify its accuracy. As previously described, the VHSCRC sought to overcome this limitation by giving each hospital administrator a spreadsheet showing all hospitals' previous-year Medicare case-mix indices and hospital-wide case-mix indices. After comparing their measures with their peers, administrators were asked to attest to the accuracy of their own hospital-wide case-mix index.

E. Formatting and Publishing the Annual Report

1. Goal: To format the pages and publish the efficiency and productivity information in the Annual Report

In July, 1994, the VHSCRC approved an outline of the content and prototype layouts for the pages of the Annual Report. This report will present the efficiency and productivity information in an easily used format. The planned release date is late fall.

2. Activities

The Annual Report will consist of three volumes. Volumes I and II will contain efficiency and productivity information for hospitals and nursing homes, respectively. Volume III will include selected trends in financial performance and utilization, similar to the information that has been presented in past years. Finally, two brochures, one focused on hospital efficiency and productivity and the other on similar information for nursing homes, are planned for later release.

Since this is the first year that VHSCRC is reporting information gathered and analyzed in accordance with the new methodology, extra effort has been devoted to making sure the information is presented in a useful way. Toward this end, a focus group was held during May, 1994.

The focus group included eleven persons, representing facility providers and insurers as well as corporate and individual consumers. They were asked to review prototype pages from Volumes I and II of the Annual Report. The group offered suggestions about clarity in language, the presentation of information on the pages, and the dissemination of findings.

The Annual Report is being produced by the Williamson Institute under contract with the VHSCRC. Analysis of data, page layouts, descriptive narratives, organization of materials, and printing are expected to be complete in late fall, 1994.

F. Educating Consumer Groups

1. Goal: To educate consumer groups about the availability of efficiency and productivity information.

The adoption of the methodology to measure efficiency and productivity, with its emphasis on furnishing information promptly to the market, has invigorated the emphasis on public relations and education. Identifying efficient and productive institutional providers of health care services in Virginia is a vital piece of information that VRSCRC has to offer. The public relations plan that VHSCRC has in place focuses on raising awareness among insurers and businesses about the availability and usefulness of VHSCRC information. The plan, which is continually updated, is the basis for all public relations activities.

The success of VHSCRC public relations activities between September, 1993 and May, 1994 was evaluated through pre- and post-test surveys conducted by the Virginia Commonwealth University Survey Research Laboratory. The results suggest a small improvement in awareness about state health care data collection but no improvement in specific knowledge about the VHSCRC. For example, prior to the public relations activities, 82 percent of respondents to the pre-test survey were unaware of any state agency that deals with information about hospital and nursing home charges, costs, and utilization. At the post-test, 78 percent were unaware of the existence of such an agency.

2. Activities

The VHSCRC carried out several public relations and educational activities during 1993/1994:

(1) A direct mail campaign was conducted during the months of October, November and December, 1993. Insurers and business representatives received a cover letter, a brochure with a punch-out rolodex card, a report order form, and a point sheet of VHSCRC accomplishments.

(2) An agency briefing meeting was held in Richmond in March, 1994. The purpose of the meeting was to increase awareness about the information the Council collects, analyzes, and disseminates. The meeting was open to the public. In attendance were representatives of business, government, media, and the health care industry, from across the state.

(3) The agency began publishing a newsletter to keep various consumers abreast of decisions relating to the efficiency and productivity methodology, the EPICS software, and the patient-level database.
(4) Articles relating to the efficiency and productivity methodology have appeared in the VHA, VHCA, and the Medical Society of Virginia Peer Review Organization newsletters. An article is expected to appear in the Travelers Insurance Company newsletter in August, 1994.
(5) The VHSCRC staff conducted presentations for the Virginia Department for the Aging, The Virginia Consumer Affairs Office, the VHA, the VHCA, Prucare, and the Lynchburg Rotary Club.
(6) Agency publications were exhibited at the 1993 Annual Conference of the Richmond Area Business Group on Health.
(7) The VHSCRC approved an agency logo and agency colors (plum and blue).
(8) Several articles have appeared in newspapers and magazines. In March, 1994, the Richmond Times-Dispatch carried a report on the agency briefing meeting. A subsequent story appeared on May 19, 1994 in the same newspaper. The August 8, 1994 edition of Modern Health Care magazine included an article that dealt with the efficiency information collected by the VHSCRC.
(9) Since November, 1993, over 2,500 agency brochures have been distributed. Many were mailed in information packets to insurance and business representatives and to private individuals.
(10) A personal computer station has been dedicated for consumers' use at the VHSCRC office. Staff members train consumers in how to retrieve and print information from the EPICS database.
(11) VHSCRC staff exhibited the agency's publications and responded to questions at the 1994 State Fair.

Additional activities are planned for the months ahead. These include:

(1) Developing an updated Information Packet;
(2) Continuing the publication of the Newsletter;
(3) Exhibiting at the Richmond Area Business Group on Health 1994 conference;
(4) Improving the distribution of reports;
(5) Developing a consumer information booklet;
(6) Promoting newspaper articles through press releases and other contacts with reporters;
(7) Conducting educational seminars; and
(8) Developing a guide to the agency's data and methodology.

VII. RECOMMENDATIONS FOR THE EVALUATION OF THE METHODOLOGY TO MEASURE EFFICIENCY AND PRODUCTIVITY

SB 518 required the VHSCRC to submit a preliminary report by December 1, 1993 and a final report by no later than October 1, 1994. Both reports were to address the effectiveness of the efficiency and productivity measurements in controlling health care costs.

In its 1993 SB 518 report, the VHSCRC presented a plan for evaluating the effectiveness of the efficiency and productivity methodology. Essentially, the VHSCRC plan calls for computing the annual rates of growth in Virginia's health institution costs before and after implementation of the methodology to measure efficiency and productivity. These rates of cost growth can be compared with one another, and with similar rates in other states and the nation as a whole.

When the VHSCRC released its 1993 SB 518 report, it anticipated that the first efficiency and productivity information would be released in the summer of 1994. The release date was delayed until late fall of 1994 in an effort to ensure the integrity of the data and to develop useful means of displaying and explaining the findings. Because 1993 was the first year in which hospitals had to provide such information as hospital-wide case-mix indices, it was particularly important to take the time necessary to be certain that the data were correct.

The first information on early response to publication of the efficiency and productivity measures will be available in the Fall of 1993. Fall 1993 findings, however, will reflect only providers' reactions to publication, not detailed data analysis.

Moreover, as the 1993 SB 518 report indicated, several years of post-implementation data will be needed for reliable judgement of the methodology's effectiveness to be made. Consequently, the VHSCRC recommends that the methodology be judged at three- and five-year intervals.

It is important to bear in mind that the methodology is in an early stage. More sophisticated measures of efficiency drawn from the patient-level database are yet to be incorporated. Measures of quality have to be included. Each of these enhancements will provide more essential information to the market place and will strengthen the methodology.

VIII. CONCLUSION

Most of the goals established during 1993 and 1994 for the new methodology have been accomplished. It is too early, however, to evaluate its effectiveness in controlling health care costs. The VHSCRC recommends that the methodology be evaluated at three- and five-year intervals. If approved, this means that reports will be submitted to the Governor, the Joint Commission on Health Care, the General Assembly, and the Virginia Health Planning Board in 1997 and again in 1999.

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APPENDIX A
SENATE BILL 518

An Act to amend and reenact §§ 9-156 through 9-160 and 9-163 of the Code of Virginia, to amend the Code of Virginia by adding sections numbered 9-161.1 and 9-162.1, and to repeal §§ 9-161 and 9-162 of the Code of Virginia, relating to the Virginia Health Services Cost Review Council.

[S 518]

Approved APR 15 1992

Be it enacted by the General Assembly of Virginia:

1. That §§ 9-156 through 9-160 and 9-163 of the Code of Virginia are amended and reenacted and that the Code of Virginia is amended by adding sections numbered 9-161.1 and 9-162.1 as follows:

§ 9-156. Definitions.—As used in this chapter:

"Consumer" means any person (i) whose occupation is other than the administration of health activities or the provision of health services, (ii) who has no fiduciary obligation to a health care institution or other health agency or to any organization, public or private, whose principal activity is an adjunct to the provision of health services, or (iii) who has no material financial interest in the rendering of health services;

"Council" means the Virginia Health Services Cost Review Council;

"Health care institution" means (i) a general hospital, ordinary hospital, outpatient surgical hospital, nursing home or certified nursing facility licensed or certified pursuant to Chapter 5, Article 1 (§ 32.1-123 et seq.) of Title 32.1, (ii) a mental or psychiatric hospital licensed pursuant to Chapter 8 (§ 37.1-179 et seq.) of Title 37.1 and (iii) a hospital operated by the University of Virginia or Virginia Commonwealth University. In no event shall such term be construed to include any physician's office, nursing care facility of a religious body which depends upon prayer alone for healing, independent laboratory or outpatient clinic;

~~"Voluntary cost review organization" means a nonprofit association or other nonprofit entity which has as its function the review of health care institution costs and charges but which does not provide reimbursement to any health care institution or participate in the administration of any review process under Chapter 4, Article 1.1 (§ 32.1-102.1 et seq.) of Title 32.1;~~

"Aggregate cost" means the total financial requirements of an institution which shall be equal to the sum of:

a. The institution's ~~reasonable~~ current operating costs, including ~~reasonable~~ expenses for operation and maintenance of approved services and facilities, ~~reasonable~~ direct and indirect expenses for patient care services, working capital needs and taxes, if any;

b. Financial requirements for allowable capital purposes, including price-level depreciation for depreciable assets and ~~reasonable~~ accumulation of funds for approved capital projects;

c. For investor-owned institutions, after tax return on equity at the percentage equal to two times the average of the rates of interest on special issues of public debt obligations issued to the Federal Hospital Insurance Trust Fund for the months in a provider's reporting period, but not less, after taxes, than the rate, or weighted average of rates, of interest borne by the individual institution's outstanding capital indebtedness. The base to which the rate of return determined shall be applied is the total net assets, adjusted by paragraph b of this definition, without deduction of outstanding capital indebtedness of the individual institution for assets required in providing institutional health care services.

§ 9-157. Council; members; terms; reimbursement; etc.—A. The ~~Virginia Health Services Cost Review Commission is continued and shall hereafter be known as the~~ Virginia Health Services Cost Review Council ; ~~The Council~~ shall be composed of ~~fifteen~~ *seventeen* members ~~as follows: thirteen members shall~~ *to* be appointed by the Governor, ~~five~~ *nine* of whom shall be consumers, *five representatives of employers or business groups and four consumers-at-large;* six of whom shall be persons responsible for the administration of nongovernmental health care institutions ; ; one of whom shall be an employee of a prepaid hospital service plan conducted under Chapter 42 of Title 38.2 ; and one of whom shall be an employee of a commercial insurer which underwrites accident and sickness insurance ; ~~one member shall be the Commissioner of Health or his designated representative and one member shall be the Director of the Department of Medical Assistance Services or his designated representative~~ . Two of the consumer members

appointed by the Governor shall be experienced in financial management or accounting. The nongovernmental health care institution members shall consist of three persons responsible for the administration of hospitals and three persons responsible for the administration of nursing homes.

Beginning July 1, 1992, each member of the Council ~~appointed by the Governor~~ shall be appointed for a term of ~~three~~ *four* years except that the ~~three~~ *new* members ~~representing nursing homes~~ initially appointed on July 1, ~~1989~~ *1992* , to increase the Council to ~~fifteen~~ *seventeen* members shall be appointed for terms of ~~from one to~~ *two,* three *or four* years to provide for staggered terms.

B. Appointive members of the Council shall not be eligible to serve as such for more than two consecutive full terms. Two or more years shall be deemed a full term.

C. Members of the Council shall receive fifty dollars per meeting of the Council and committees appointed by the chairman, not to exceed fifty dollars for any one day, for their service on the Council and shall also be reimbursed for necessary and proper expenses that are incurred in the performance of their duties on behalf of the Council.

D. A consumer member shall be elected by the Council to serve as chairman. The Council may elect from among its members a vice chairman. Meetings of the Council shall be held as frequently as its duties require.

E. Nine members shall constitute a quorum.

§ 9-157.1. Executive Director; powers and duties.—A. The Governor shall appoint an Executive Director of the Council, subject to confirmation by the General Assembly. The Executive Director shall hold his position at the pleasure of the Governor.

B. The Executive Director shall have the following powers:

1. To supervise the administration of work of the Council;

2. To prepare, approve, and submit any requests for appropriations and be responsible for all expenditures pursuant to appropriations;

3. To employ such staff as is necessary to carry out the powers and duties of this chapter, within the limits of available appropriations;

4. To do all acts necessary or convenient to carry out the purpose of this chapter and to assist the Council in carrying out its responsibilities and duties;

5. To make and enter into all contracts and agreements necessary or incidental to the performance of its duties and the execution of its powers under this chapter, including, but not limited to, contracts with the United States, other states, and agencies and governmental subdivisions of the Commonwealth. *If the Executive Director contracts with an organization for services as necessary to conduct the technical analyses of health care institution filings under this chapter, he may only do so upon receiving the prior approval of the Council to contract with that organization.*

§ 9-158. Uniform reporting regulations.—A. The Council shall establish by regulation a uniform system of financial reporting by which health care institutions shall report their revenues, expenses, other income, other outlays, assets and liabilities, units of service and related statistics. In determining the effective date for reporting requirements, the Council shall be mindful both of the immediate need for uniform health care institutions' reporting information to effectuate the purposes of this chapter and the administrative and economic difficulties which health care institutions may encounter in complying, but in no event shall such effective date be later than two and one-half years from the date of the formation of the Council. ~~In the case of nursing homes, the effective date shall be no later than July 1, 1990. During the year of July 1, 1989, through June 30, 1990, each nursing home provider shall comply with subdivisions A 1 and A 2 of § 9-159 and assist in developing requirements for reporting such other costs incurred in rendering services as the Council may prescribe.~~

B. In establishing such uniform reporting procedures the Council shall take into consideration:

1. Existing systems of accounting and reporting presently utilized by health care institutions;

2. Differences among health care institutions according to size, age, financial structure, methods of payment for services, and scope, type and method of providing services;

3. Other pertinent distinguishing factors;

4. Data and forms presently used by other state agencies receiving similar information from hospitals and nursing homes, in order to eliminate duplicate reporting of data and reduce the administrative burden of compliance to the minimum; and

5. Methods to minimize the financial impact and administrative burdens on all providers.

C. The Council, where appropriate, shall provide for modification consistent with the

purposes of this chapter, of reporting requirements to reflect correctly these differences among health care institutions and to avoid otherwise unduly burdensome costs in meeting the requirements of the uniform system of financial reporting.

§ 9-159. Filing requirements.—A. Each health care institution shall file annually with the Council after the close of the health care institution's fiscal year:

1. A certified audited balance sheet detailing its assets, liabilities and net worth, unless the institution is part of a publicly held company, in which case the equivalent extracted data for the institution shall be submitted in lieu of certified audited data;

2. A certified audited statement of income and expenses, unless the institution is part of a publicly held company, in which case the equivalent extracted data for the institution shall be submitted in lieu of certified audited data;

3. All reports referenced in § 9-158 and such other reports of the costs incurred in rendering services as the Council may prescribe ~~:~~ *;*

4. A current charge schedule, with any subsequent amendments or modifications of that schedule being filed with the Council at least sixty days in advance of their effective dates; and

5. A report of aggregate costs and aggregate charges in a form specified by the Council.

The Council may, by regulation, exempt charge changes which have a minimal impact on revenues from the requirement, pursuant to subdivision 4 above, for filing amendments or modifications of a current charge schedule at least sixty days in advance of their effective dates.

B. ~~The findings, recommendations and justification for such recommendations of the Council shall be open to public inspection, but individual health care institution filings made pursuant to this chapter shall not be subject to the provisions of § 2.1-342. Individual patient and personnel information shall not be disclosed.~~ *No individual health care institution filings relating to an institution's budget shall be open to public inspection. Except as provided in § 9-160 A 5, individual patient and personnel information shall not be disclosed. Other individual health care institution filings shall be open to public inspection once the Council has adopted findings, recommendations and justification for such recommendations regarding that institution.*

C. The Council shall have the right to inspect *during regular business hours upon reasonable notice* any health care institution's audits and records as reasonably necessary to verify ~~reports~~ *the accuracy of any information submitted* .

§ 9-160. Continuing analysis, publication, etc.—A. The Council shall:

1. Undertake financial analysis and studies relating to health care institutions.

2. Publish and disseminate information relating to health care institutions' costs and charges including the publication of changes in charges other than those having a minimal impact prior to any changes taking effect. *The Council may publicly comment on any increase or decrease in charges that it determines to be excessive or inadequate.*

3. Survey all ~~hospitals~~ *health care institutions* that report to the Council or any corporation that controls a ~~hospital~~ *health care institutions* to determine the extent of *related party transactions and* commercial diversification by such ~~hospitals~~ *health care institutions* in the Commonwealth. The survey shall be in a form and manner prescribed by the Council and shall request the *following* information ~~specified in subdivisions a, f, g, h and i below on each hospital or such corporation and, with respect to any tax-exempt hospital or controlling corporation thereof, the information specified in subdivisions a through i below for each affiliate of such hospital or corporation, if any~~ :

a. The name and principal activity;

b. The date of the affiliation;

c. The nature of the affiliation;

d. The method by which each affiliate was acquired or created;

e. The tax status of each affiliate and, if tax-exempt, its Internal Revenue tax exemption code number;

f. The total assets;

g. The total revenues;

h. The net profit after taxes, or if not-for-profit, its excess revenues; ~~and~~

i. The net equity, or if not-for-profit, its fund balance ~~:~~ *; and*

j. Information regarding related party transactions.

As a part of this survey, each ~~hospital~~ *health care institution* that reports to the Council or any corporation which controls a ~~hospital~~ *health care institution* that reports to the Council shall submit ~~an~~ audited consolidated financial ~~statement~~ *statements and audited consolidating financial schedules* to the Council which ~~includes~~ a ~~balance sheet detailing~~

include its total assets, liabilities , *revenues, expenses,* and net worth ~~and~~ a ~~statement of income and expenses and includes information on all such corporation's affiliates~~ .

The survey shall include the required information for all affiliates in which the health care institution or any corporation which controls a health care institution has a twenty-five percent or greater ownership interest. The Council may, by regulation, exempt certain types of required information and certain classes of affiliates. Information regarding affiliates of organizations that do not have corporate headquarters in Virginia and that do no business in Virginia need not be provided.

The Council shall report the results of this survey by December 1 of each year to the General Assembly. This report shall be open to public inspection. Information filed pursuant to this subdivision shall not be subject to the provisions of § 2.1-342.

4. Provide information concerning costs and charges to the public , *including information about the relationship between aggregate costs and aggregate charges,* in a form which consumers can use to compare costs and services in order to increase competition within the health care industry and contain health care costs.

B. The Council may require the furnishing and review of projected annual revenues and expenses of health care institutions and comment on them.

~~B.~~ *C.* The Council shall prepare and may make public summaries and compilations or other supplementary reports based on the information filed with or made available to the Council.

~~C.~~ *D.* The Council, in carrying out its responsibilities under this ~~section and § 9-161~~ *chapter* , shall be cognizant of other programs which bear upon the operation of health care institutions including programs relating to health planning, licensing and utilization review.

§ 9-161.1. Methodology to review and measure the efficiency and productivity of health care institutions.—By January 1, 1993, the Council shall promulgate regulations establishing a methodology for the review and measurement of the efficiency and productivity of health care institutions. The methodology shall provide for, but not be limited to, comparisons of a health care institution's performance to national and regional data.

The Council may promulgate different methodologies and reporting requirements for the assessment of the various types of health care institutions which report to it.

§ 9-162.1. Chapter and actions thereunder not to be construed as approval of reasonableness.—Nothing in this chapter or the actions taken by the Council pursuant to any of its provisions shall be construed as constituting approval by the Commonwealth or any of its agencies or officers of the reasonableness of any charges made or costs incurred by any health care institution.

§ 9-163. Administration.— *A. The Council shall prescribe a reasonable fee for each affected health care institution to cover the costs of the reasonable expenses of the Council and any reviews undertaken pursuant to this chapter. The fees shall be established and reviewed annually by the Council. The payment of such fees shall be at such time as the Council designates. The Council may assess a late charge on any fees paid after their due date.*

B. The Council ~~(i)~~ shall *(i)* maintain records of its activities; (ii) ~~shall~~ collect and account for all fees prescribed to be paid into the Council and account for and deposit the moneys so collected into a special fund from which the expenses of the Council shall be paid; *and* (iii) ~~shall~~ enforce all regulations promulgated by it ; ~~and (iv) shall contract with any voluntary cost review organization for services necessary to carry out the Council's activities where this will promote economy, efficiency, avoid duplication of effort and make best use of available expertise~~ .

2. That the Council shall submit a preliminary report by December 1, 1993, and a final report by no later than October 1, 1994, to the Commission on Health Care for All Virginians and to the Governor and the General Assembly, regarding the effectiveness of its efficiency and productivity measurements in controlling health care costs. Further, the Council shall, if a determination is made that the measurements are not effective in controlling health care costs, include in the final report a plan to implement a mandatory rate-setting mechanism.

3. That §§ 9-161 and 9-162 of the Code of Virginia are repealed.

APPENDIX B
SENATE JOINT RESOLUTION 118

SENATE JOINT RESOLUTION NO. 118

Requesting the Virginia Health Services Cost Review Council to develop and adopt a methodology which identifies the most efficient providers of high quality health care in the Commonwealth.

Agreed to by the Senate, February 11, 1992
Agreed to by the House of Delegates, February 21, 1992

WHEREAS, the Virginia Health Services Cost Review Council was established in 1978 and has had as part of its responsibilities the authority to initiate reviews or investigations to assure purchasers of health care services that hospitals' aggregate charges are equitable and reasonably related to aggregate costs; and

WHEREAS, in 1978, the Virginia Health Services Cost Review Council adopted the Virginia hospital industry's methodology for review of hospital costs and charges; and

WHEREAS, the Virginia Health Services Cost Review Council has continued to use that same methodology, with some modifications, even though significant changes in health care financing for hospitals have occurred in the last ten years, resulting in reimbursement based largely on prospective payments or individually negotiated discount arrangements; and

WHEREAS, since 1983, the Virginia Health Services Cost Review Council has sought to keep Virginia's rate of increase in health care costs at or below the national rate; and

WHEREAS, health care expenditures comprised 12 percent of the Gross National Product in 1990 and may well exceed 15 percent by the year 2000; and

WHEREAS, nursing homes and certified nursing facilities are included within the statutory definition of health care institutions and therefore come under the Council's review authority; and

WHEREAS, in 1989, the Virginia Health Services Cost Review Council adapted the same previously cited methodology for its review of nursing homes and certified nursing facilities; and

WHEREAS, in January 1991, the Virginia Health Services Cost Review Council voted to review these methodologies; and

WHEREAS, the Secretary of Health and Human Resources retained a consultant to study the Council's methodology; and

WHEREAS, at the December 1991 meeting of the Commission on Health Care for All Virginians, the consultant reported on the following potential improvements in methodology: the development of efficiency and productivity tests and the consideration of improving quality by using a patient-level data base; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That the Virginia Health Services Cost Review Council consider the recommendations of the consultant retained by the Secretary of Health and Human Resources to study the Council's methodology and to promulgate, by January 1, 1993, changes to the methodology which will improve identification of the most efficient providers of high quality health care within the Commonwealth.

The Virginia Health Services Cost Review Council shall report to the Commission on Health Care for All Virginians by October 15, 1992, on proposed changes to the methodology and present a plan for recognizing and commending the most outstanding health care providers within the Commonwealth, as measured by its methodology.

APPENDIX C
INDICATOR DEFINITIONS

Table C1
Indicator Definitions - Acute Care Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
1.	Average Gross Patient Revenue / Adjusted Admission	a.) Gross Patient Revenue / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total Gross Patient Revenue b.) The sum of inpatient admissions and equivalent admissions attributed to outpatient services, all then adjusted for case mix Outpatient adjusted admissions is the sum of admissions and equivalent admissions attributed to outpatient services. The number of equivalent admissions attributed to outpatient services is derived by multiplying admissions by the ratio of gross outpatient revenue to gross inpatient revenue. Outpt Adj. Admissions = Admissions + [(Gr. Outpt. Rev. / Gr. Inpt. Rev.) * Admissions]. Case-mix adjustment is made by applying the Medicare case-mix formula to all inpatients, computing an index for all patients, and then multiplying it by outpatient adjusted admissions. Adj. Admissions (adjusted for case-mix and outpatients) = Outpt. Adj. Admissions x Case-Mix.	1.3 / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4c	Average full charge per admission
2.	Average Net Patient Revenue / Adjusted Admission	a.) Net Patient Revenue / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total Net Patient Revenue b.) See 1b	1.8 / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4e	Average net charge per admission

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Table C1 *continued*
Indicator Definitions - Acute Care Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
3.	Cost / Adjusted Admission	a.) Cost / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total Operating Expenses b.) See 1b.	1.15 / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4c	Overall cost per admission
4.	Labor Cost / Adjusted Admission	a.) Labor Cost / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total Labor Costs b.) See 1b.	1.10f / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4c	Labor cost per admission
5.	Non-Labor Cost / Adjusted Admission	a.) Non-Labor Cost / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total Non-Labor Non-Capital Costs b.) See 1b.	1.11f / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4c	Non-labor cost per admission
6.	Capital Cost / Adjusted Admission	a.) Capital Cost / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total Capital Costs as defined by Medicare b.) See 1b.	1.12f / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4c	Capital cost per admission

Table C1 *continued*
Indicator Definitions - Acute Care Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
7.	Full Time Equivalents/ Adjusted Occupied Bed	a.) Full Time Equivalents / b.) Adjusted Occupied Bed (adjusted for outpatient services and case-mix)	a.) Full Time Equivalents / b.) The sum of occupied beds and equivalent occupied beds attributed to outpatient services, all then adjusted for case mix Outpatient adjusted occupied bed is the sum of inpatient occupied beds and equivalent outpatient occupied beds attributed to outpatient services. The number of equivalent occupied beds attributed to outpatient services is derived by multiplying inpatient days by the ratio of gross outpatient revenue to gross inpatient revenue, all divided by days in fiscal year. Outpt Adj. Occupied Bed = [Inpt. Days + ((Gr.Outpt.Rev. / Gr.Inpt.Rev.) * Inpt Days)] / days in fiscal year. Case-mix adjustment is made by applying the Medicare case-mix system to all patients, computing an index for all patients, and then multiplying it by outpatient adjusted patient days. Adj. Occupied Bed (adjusted for case-mix and outpatients) = Outpt. Adj. Occupied Bed x Case-Mix.	5.5h / [(5.1f + (5.1f)*(1.2d/1.1d))*5.4c / days in fiscal year]	Number of full-time staff for each occupied bed
8.	Paid Hours / Adjusted Admission	a.) Paid Hours / b.) Adjusted Admissions (adjusted for outpatient services and case-mix)	a.) Total hours paid b.) See 1b. One FTE equals 2080 hours per year. Hours per year divided by days in fiscal year = 5.69863014.	(5.5h*5.69863014*days in fiscal year) / [5.2f + (5.2f)*(1.2d/1.1d)]*5.4e	Paid hours per admission

Table C1 *continued*
Indicator Definitions - Acute Care Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
9.	Staffed Beds Occupancy	a.) Total Inpatient Days / b.) Staffed Bed Days	a.) Total Inpatient Days b.) Staffed Beds multiplied by days in fiscal year	5.1f / [(7.11 staffed beds -7.6-7.9)*days in fiscal year]	Occupancy of staffed beds
10.	Licensed Beds Occupancy	a.) Total Inpatient Days / b.) Licensed Bed Days	a.) Total Inpatient Days b.) Licensed Beds multiplied by days in fiscal year	5.1f / [(7.11 licensed beds -7.6-7.9)*days in fiscal year]	Occupancy of licensed beds
11.	Special Services Utilization	a.) Special Services b.) Utilization	Special Services Utilization is an average score of utilization for all special services. For each hospital, a special service that is provided is measured for percentage utilization against the CON standard. All of the percentages are totaled. This total is then divided by the number of special services provided. a.) Special Services are those patient care procedures, treatments, and cases that are now subject to CON. This includes services provided by a subsidiary that is at least 25% owned by the hospital. b.) Utilization for each special service is the actual number of units of service divided by the available staffed beds or the Medical Facilities Plan CON standard service utilization.	Data elements from 7.3, 7.5, 7.7, 7.14, 7.15, and 11.0	Average percentage utilization of high capital-cost services

Table C1 *continued*
Indicator Definitions - Acute Care Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
12.	Case-Mix-Adjusted Average Length of Stay	a) Average Length of Stay/ b) Total Case Mix	a) Average Length of Stay is equal to the total patient days divided by the number of admissions. b) Total Case-Mix is the case mix for the entire facility.	(5.1f/5.2f) / 5.4c	Average length of stay adjusted for case mix
13.	Cash Debt Coverage	a.) Cash Flow from Operations + Interest Paid / b.) Current Debt Service	a.) Cash Flow from Operations + Interest Paid b.) Current Debt Service	(4.1+4.2) / (4.2+4.4)	Ability to repay long-term debt
14.	Total Margin	a.) Revenue and Gains in Excess of Expenses and Losses / b.) Total Net Operating Revenue + c.) Net Non-operating Gains	a.) Revenue and Gains in Excess of Expenses and Losses b.) Total Net Operating Revenue c.) Net Non-operating Gains	(1.16 + 1.17) / (1.8 + 1.9 + 1.17)	Operating and non-operating profit
15.	Return on Assets (cash)	a.) Cash Flow from Operations / b.) Total Unrestricted Assets	a.) Cash Flow from Operations b.) Total Unrestricted Assets	4.1 / 2.6	Financial return from investment in assets in cash terms

Table C1 *continued*
Indicator Definitions - Acute Care Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
16.	Fixed Asset Financing Ratio	a.) Long Term Liabilities / b.) Net Fixed Assets	a.) Long Term Liabilities b.) Fixed Assets Net of Accumulated Straight Line Depreciation	2.8c / 2.4	Amount of long-term debt
17.	Community Support Provided	a.) Uncompensated Care as a Proportion of Total Expenses + b.) Taxes Paid as a Proportion of Total Expenses	a.) [(Expenses required to provide charity care to people with incomes <= 100% of the federal poverty level) + (Expenses required to provide charity care to people with incomes > 100% and <= 200% of the federal poverty level) + (bad debt expenses) + (payments to the Indigent Care Trust Fund)] all divided by Total Expenses b.) Taxes Paid divided by Total Expenses These will be summed and used for one quartile score.	[1.5*1.15/(1.3 + 1.9) + 1.6*1.15/(1.3 + 1.9) + 1.14 + 1.7 + 1.13i] / 1.15	Community Support Provided
18.	Medicaid Participation	a.) Medicaid Patient Days Adjusted for Outpatients / b.) Total Patient Days Adjusted for Outpatients	a.) Medicaid patient days adjusted for outpatients x 100 / b.) Total days adjusted for outpatients	[5.1a + (5.1a)*(1.2a/1.1a)] *100 / [5.1f + (5.1f)*(1.2d/1.1d)]	Medicaid Participa-tion

Table C2
Indicator Definitions - Nursing Homes

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
1.	Average Gross Patient Revenue / Adjusted Patient Day	a.) Gross Patient Revenue / b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Gross Patient Revenue b.) Patient days adjusted for case-mix, ancillary and outpatient services	1.3 / Patient days adjusted for case-mix, ancillary & outpatient services	Average full charge per patient day
2.	Average Net Patient Revenue / Adjusted Patient Day	a.) Net Patient Revenue / b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Net Patient Revenue b.) Patient days adjusted for case-mix, ancillary and outpatient services	1.7g / Patient days adjusted for case-mix, ancillary & outpatient services	Average net charge per patient day
3.	Cost / Adjusted Patient Day	a.) Cost / b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Operating Expenses b.) Patient days adjusted for case-mix, ancillary and outpatient services	1.14 / Patient days adjusted for case-mix, ancillary & outpatient services	Cost per patient day
4.	Labor Cost / Adjusted Patient Day	a.) Labor Cost / b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Labor Costs b.) Patient days adjusted for case-mix, ancillary and outpatient services	1.9f / Patient days adjusted for case-mix, ancillary & outpatient services	Labor cost per patient day
5.	Non-Labor Cost / Adjusted Patient Day	a.) Non-Labor Cost / b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Non-Labor Costs b.) Patient days adjusted for case-mix, ancillary and outpatient services	1.10g / Patient days adjusted for case-mix, ancillary & outpatient services	Non-labor cost per patient day
6.	Capital Cost / Adjusted Patient Day	a.) Capital Cost / b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Capital Costs as defined by Medicaid b.) Patient days adjusted for case-mix, ancillary and outpatient services	1.11g / Patient days adjusted for case-mix, ancillary & outpatient services	Capital cost per patient day

Indicator Definitions - Nursing Homes

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
7.	Paid Hours / Adjusted Patient Day	a.) Full Time Equivalents/ b.) Adjusted Patient Days (Patient days adjusted for case-mix, ancillary and outpatient services)	a.) Total Hours Paid b.) Patient days adjusted for case-mix, ancillary and outpatient services One FTE equals 2080 hours per year. Hours per year divided by days in fiscal year = 5.69863014.	(5.2f *5.69863014 * days in fiscal year)/ Patient days adjusted for case-mix, ancillary & outpatient services	Paid hours per adjusted patient day
8.	Total Margin	a.) Revenue and Gains in Excess of Expenses and Losses / b.) Total Net Operating Revenue + c.) Net Non-operating Gains	a.) Revenue and Gains in Excess of Expenses and Losses b.) Total Net Operating Revenue c.) Net Non-operating Gains	(1.15 + 1.16) / (1.7g + 1.8 + 1.16)	Operating and non-operating profit
9.	Return on Assets (cash)	a.) Cash Flow from Operations / b.) Total Unrestricted Assets	a.) Cash Flow from Operations b.) Total Unrestricted Assets	4.1 / 2.6	Financial return from investment in assets in cash terms
10.	Cash Debt Coverage	a.) Cash Flow from Operations / b.) Current Debt Service	a.) Cash Flow from Operations + Interest Paid b.) Current Principal and Interest	(4.1 + 4.2) / (4.2 + 4.4)	Ability to repay long-term debt
11.	Fixed Asset Financing Ratio	a.) Long-Term Liabilities / b.) Net Fixed Assets	a.) Long-Term Liabilities b.) Fixed Assets Net of Accumulated Straight Line Depreciation	2.8e / 2.4	Amount of long-term debt
12.	Community Support Provided	a.) Uncompensated Care as a Proportion of Total Expenses + b.) Taxes Paid as a Proportion of Total Expenses	a.) [(Expenses required to provide charity care to people with incomes <= 100% of the federal poverty level) + (Expenses required to provide charity care to people with incomes > 100% and <= 200% of the federal poverty level) + (bad debt expenses)] all divided by Total Expenses plus b.) Taxes Paid divided by Total Expenses.	[1.5*1.14/(1.3+1.8) + 1.6*1.14/(1.3+1.8) + 1.13 + 1.12i] / 1.14	Community Support Provided
13.	Medicaid Participation	a.) Medicaid Patient Days / b.) Total Patient Days	a.) Number of Medicaid days X 100 b.) Total patient days	(5.1a + 5.1b)*100 / 5.1g	Medicaid Participation

Table C3
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
1.	Average Gross Patient Revenue / Adjusted Patient Day	a.) Gross Patient Revenue / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Gross Patient Revenue b.) Adjusted patient days is the sum of inpatient days plus equivalent patient days attributed to outpatient, partial hospitalization, and residential services. The number of equivalent patient days is derived by multiplying inpatient days by the ratio of the sum of gross outpatient plus partial hospitalization plus residential revenue to gross inpatient revenue. Adj. Pt. Days = Inpt. Days + Inpt Days * [(Otpt.Rev. + Prtl. Hsptzn. Rev. + Residntl Rev.) / Inpt.Rev.]	1.5 / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Average full charge per patient day
2.	Average Net Patient Revenue / Adjusted Patient Day	a.) Net Patient Revenue / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Net Patient Revenue b.) See 1b.	1.8 / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Average net charge per patient day

Table C3 *continued*
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
3.	Average Gross Patient Revenue / Adjusted Admission	a.) Gross Patient Revenue / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Gross Patient Revenue b.) Adjusted admissions is the sum of admissions plus equivalent admissions attributed to outpatient, partial hospitalization, and residential services. The number of equivalent admissions is derived by multiplying inpatient admissions by the ratio of the sum of gross outpatient plus partial hospitalization plus residential revenue to gross inpatient revenue. Adj. Admissions = Inpt. Admissions + Inpt Admssns * [(Otpt.Rev. + Prtl. Hsptzn. Rev. + Residntl Rev.) / Inpt.Rev.]	1.5 / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Average full charge per admission
4.	Average Net Patient Revenue / Adjusted Admission	a.) Net Patient Revenue / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Net Patient Revenue b.) See 3b.	1.8 / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Average net charge per admission
5.	Cost / Adjusted Patient Day	a.) Cost / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Operating Expenses b.) See 1b.	1.15 / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Cost per patient day

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Table C3 *continued*
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
6.	Cost / Adjusted Admission	a.) Cost / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Operating Expenses b.) See 3b.	1.15 / [5.2g + (5.2g) * (1.2g + 1.3g 1.4g) / 1.1g]	Cost per admission
7.	Labor Cost / Adjusted Patient Day	a.) Labor Cost / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Labor Costs b.) See 1b.	1.10f / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Labor cost per patient day
8.	Non-Labor Cost / Adjusted Patient Day	a.) Non-Labor Cost / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Non-Labor Non-Capital Costs b.) See 1b.	1.11f / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Non-Labor cost per patient day
9.	Capital Cost / Adjusted Patient Day	a.) Capital Cost / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Capital Costs as defined by Medicare b.) See 1b.	1.12f / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Capital cost per patient day

Table C3 *continued*
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
10.	Operating Income / Adjusted Patient Day	a.) Operating Income / b.) Adjusted Patient Day (adjusted for outpatient, partial hospitalization, and residential service)	a.) Net Patient Revenue plus Other Operating Revenue less Total Operating Expenses b.) See 1b.	1.16 / [5.1g + (5.1g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Operating income per patient day
11.	Labor Cost / Adjusted Admission	a.) Labor Cost / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Labor Costs b.) See 3b.	1.10f / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Labor cost per admission
12.	Non-Labor Cost / Adjusted Admission	a.) Non-Labor Costs / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Non-Labor Non-Capital Costs b.) See 3b.	1.11f / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Non-Labor cost per admission
13.	Capital Cost / Adjusted Admission	a.) Capital Cost / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Total Capital Costs as defined by Medicare b.) See 3b.	1.12f / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Capital per admission

Table C3 *continued*
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
14.	Operating Income / Adjusted Admission	a.) Operating Income / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a.) Net Patient Revenue plus Other Operating Revenue less Total Operating Expenses b.) See 3b.	1.16 / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Operating income per admission
15.	Full Time Equivalents / Adjusted Occupied Bed	a.) Full Time Equivalents / b.) Adjusted Occupied Bed (adjusted for outpatient, partial hospitalization, and residential service)	a.) Full Time Equivalents b.) Adjusted occupied bed is the sum of inpatient occupied beds and equivalent occupied bed attributed to outpatient, partial hospitalization, and residential services. The number of equivalent occupied beds days is derived by multiplying inpatient days by the ratio of gross outpatient plus partial hospitalization plus residential revenue to gross inpatient revenue, all divided by days in fiscal year.	5.6k / [5.1g + (5.1g) * ((1.2g + 1.3g + 1.4g) / 1.1g) / days in fiscal year]	Number of full time staff for each occupied bed
16.	Paid Hours / Adjusted Admission	a.) Paid Hours / b.) Adjusted Admissions (adjusted for outpatient, partial hospitalization, and residential service)	a). Total hours paid b.) See 3b. One FTE equals 2080 hours per year. Hours per year divided by days in fiscal year = 5.69863014.	(5.6k*5.69863014*days in fiscal year) / [5.2g + (5.2g) * (1.2g + 1.3g + 1.4g) / 1.1g]	Paid hours per admission
17.	Staffed Beds Occupancy	a.) Total Inpatient Days / b.) Staffed Bed Days	a.) Total Inpatient Days b.) Staffed Beds * 365	5.1g / (7.7 staffed beds * 365)	Occupancy of staffed beds

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Table C3 *continued*
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
18.	Licensed Beds Occupancy	a.) Total Inpatient Days / b.) Licensed Bed Days	a.) Total Inpatient Days b.) Licensed Beds * 365	5.1g / (7.7 licensed beds * 365)	Occupancy of licensed beds
19.	Replacement Viability	a.) Restricted Plant Fund Balance + b.) Unrestricted Investments / c.) Accumulated Depreciation	a.) Restricted Plant Fund Balance b.) Unrestricted Long-term and Short-term Investments c.) Accumulated Straight Line	(2.9 + 2.5 + 2.1) / 2.3	Ability to replace plant and equipment
20.	Total Margin	a.) Revenue and Gains in Excess of Expenses and Losses / b.) Total Net Operating Revenue + c.) Net Non-operating Gains	a.) Revenue and Gains in Excess of Expenses and Losses b.) Total Net Operating Revenue c.) Net Non-operating Gains	(1.16 + 1.17) / (1.8 + 1.9 + 1.17)	Operating and non-operating profit
21.	Return on Assets (cash)	a.) Cash Flow from Operations / b.) Total Unrestricted Assets	a.) Cash Flow from Operations b.) Total Unrestricted Assets	4.1 / 2.6	Financial return from investment in assets in cash terms

Table C3 *continued*
Indicator Definitions - Psychiatric Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
22.	Cash Debt Coverage	a.) Cash Flow from Operations / b.) Current Debt Service	a.) Cash Flow from Operations b.) Current Debt Service	(4.1 + 4.2) / (4.2 + 4.4)	Ability to repay long-term debt
23.	Fixed Asset Financing Ratio	a.) Long-Term Liabilities / b.) Net Fixed Assets	a.) Long-Term Liabilities b.) Fixed Assets Net of Accumulated Straight Line Depreciation	2.8e / 2.4	Amount of long-term debt
24.	Community Support Provided	a.) Uncompensated Care as a Proportion of Total Expenses + b.) Taxes Paid as a Proportion of Total Expenses	a.) [(Expenses required to provide charity care to people with incomes <= 100% of the federal poverty level) + (bad debt expenses)] all divided by Total Expenses b.) Taxes Paid divided by Total Expenses	[1.7 * 1.15/(1.5+1.9) + 1.14 + 1.13i] / 1.15	Community Support Provided

Table C4
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
1.	Average Gross Patient Revenue / Adjusted Patient Day	a.) Gross Patient Revenue / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Total Gross Patient Revenue b.) Adjusted patient days is the sum of inpatient days and equivalent patient days attributed to outpatient services. The number of equivalent patient days attributed to outpatient services is derived by multiplying inpatient days by the ratio of gross outpatient revenue to gross inpatient revenue. Adj. Pt. Days = Inpt. Days + [(Gr.Otpt.Rev. / Gr.Inpt.Rev.) * Inpt Days]	1.3 / [5.1c + (5.1e)*(1.2e/1.1e)]	Average full charge per patient day
2.	Average Net Patient Revenue / Adjusted Patient Day	a.) Net Patient Revenue / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Total Net Patient Revenue b.) See 1b.	1.7 / [5.1c + (5.1e)*(1.2e/1.1e)]	Average net charge per patient day

Table C4 *continued*
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
3.	Average Gross Patient Revenue / Adjusted Admission	a.) Gross Patient Revenue / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total Gross Patient Revenue b.) Adjusted admissions is the sum of admissions and equivalent admissions attributed to outpatient service. The number of equivalent admissions attributed to outpatient services is derived by multiplying admissions by the ratio of gross outpatient revenue to gross inpatient revenue. Adj. Admsns = Admsns + [(Gr.Otpt.Rev. / Gr.Inpt.Rev.) * Admsns]	1.3 / [5.2e + (5.2e)*(1.2e/1.1e)]	Average full charge per admission
4.	Average Net Patient Revenue / Adjusted Admission	a.) Net Patient Revenue / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total Net Patient Revenue b.) See 3b.	1.7 / [5.2e + (5.2e)*(1.2e/1.1e)]	Average net charge per admission
5.	Cost / Adjusted Patient Day	a.) Cost / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Total Operating Expenses b.) See 1b.	1.14 / [5.1e + (5.1e)*(1.2e/1.1e)]	Cost per patient day
6.	Cost / Adjusted Admission	a.) Cost / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total Operating Expenses b.) See 3b.	1.14 / [5.2e + (5.2e)*(1.2e/1.1e)]	Cost per admission

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Table C4 *continued*
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
7.	Labor Cost / Adjusted Patient Day	a.) Labor Cost / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Total Labor Costs b.) See 1b.	1.9f / [5.1e + (5.1e)*(1.2e/1.1e)]	Labor cost per patient day
8.	Non-Labor Cost / Adjusted Patient Day	a.) Non-Labor Cost / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Total Non-Labor Costs b.) See 1b.	1.10f / [5.1e + (5.1e)*(1.2e/1.1e)]	Non-Labor cost per patient day
9.	Capital Cost / Adjusted Patient Day	a.) Capital Cost / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Total Capital Costs as defined by Medicare b.) See 1b.	1.11f / [5.1e + (5.1e)*(1.2e/1.1e)]	Capital cost per patient day
10.	Operating Income / Adjusted Patient Day	a.) Operating Income / b.) Adjusted Patient Day (adjusted for outpatient services)	a.) Net Patient Revenue plus Other Operating Revenue less Total Operating Expenses b.) See 1b.	1.15 / [5.1e + (5.1e)*(1.2e/1.1e)]	Operating income per patient day

Table C4 *continued*
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
11.	Labor Cost / Adjusted Admission	a.) Labor Cost / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total Labor Costs b.) See 3b.	1.9f / [5.2e + (5.2e)*(1.2e/1.1e)]	Labor cost per admission
12.	Non-Labor Cost / Adjusted Admission	a.) Non-Labor Costs / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total Non-Labor Costs b.) See 3b.	1.10f / [5.2e + (5.2e)*(1.2e/1.1e)]	Non-Labor cost per admission
13.	Capital Cost / Adjusted Admission	a.) Capital Cost / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total Capital Costs as defined by Medicare b.) See 3b.	1.11f / [5.2e + (5.2e)*(1.2e/1.1e)]	Capital per admission
14.	Operating Income / Adjusted Admission	a.) Operating Income / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Net Patient Revenue plus Other Operating Revenue less Total Operating Expenses b.) See 3b	1.15 / [5.2e + (5.2e)*(1.2e/1.1e)]	Operating income per admission

Table C4 *continued*
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
15.	Full Time Equivalent / Adjusted Occupied Bed	a.) Full Time Equivalents/ a) Adjusted Occupied Bed (adjusted for outpatient services)	a.) Full Time Equivalents b.) The sum of occupied beds and equivalent occupied beds attributed to outpatient services. Outpatient adjusted occupied bed is the sum of inpatient occupied beds and equivalent outpatient occupied beds attributed to outpatient services. The number of equivalent occupied beds attributed to outpatient services is derived by multiplying inpatient days by the ratio of gross outpatient revenue to gross inpatient revenue, all divided by days in fiscal year.	5.4k / [(5.1e + (5.1e)* (1.2e/1.1e)) days in fiscal year]	Number of full time staff for each occupied bed
16.	Paid Hours / Adjusted Admissions	a.) Paid Hours / b.) Adjusted Admissions (adjusted for outpatient service)	a.) Total hours paid b.) See 3b One FTE equals 2080 hours per year. Hours per year divided by days in fiscal year = 5.69863014	(5.4k*5.69863014*days in fiscal year) / [5.2e + (5.2e)* (1.2e/1.1e)]	Pid hours per admission
17.	Staffed Beds Occupancy	a.) Total Inpatient Days / b.) Staffed Bed Days	a.) Total Inpatient Days b.) Staffed Beds * 365	5.1e / (7.5 staffed beds * 365)	Occupancy of staffed beds

Table C4 *continued*
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
18.	Licensed Beds Occupancy	a.) Total Inpatient Days / b.) Licensed Bed Days	a.) Total Inpatient Days b.) Licensed Beds * 365	5.1e / (7.5 licensed beds * 365)	Occupancy of licensed beds
19.	Replacement Viability	a.) Restricted Plant Fund Balance + b. Unrestricted Investments / c.) Accumulated Depreciation	a.) Restricted Plant Fund Balance b.) Unrestricted Long-term and Short-term Investments c.) Accumulated Straight Line Depreciation	(2.9 + 2.5 + 2.1) / 2.3	Ability to replace plant and equipment
20.	Total Margin	a.) Revenue and Gains in Excess of Expenses and Losses / b.) Total Net Operating Revenue + c.) Net Non-operating Gains	a.) Revenue and Gains in Excess of Expenses and Losses b.) Total Net Operating Revenue c.) Net Non-operating Gains	(1.15 + 1.16) / (1.7 + 1.8 + 1.16)	Operating and nonoperating profit
21.	Return on Assets (cash)	a.) Cash Flow from Operations / b.) Total Unrestricted Assets	a.) Cash Flow from Operations b.) Total Unrestricted Assets	4.1 / 2.6	Financial return from investment in assets in cash terms

Table C4 *continued*
Indicator Definitions - Rehabilitation Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
22.	Cash Debt Coverage	a.) Cash Flow from Operations / b.) Current Debt Service	a.) Cash Flow from Operations b.) Current Debt Service	(4.1 + 4.2) / (4.2 + 4.4)	Ability to repay long-term debt
23.	Fixed Asset Financing Ratio	a.) Long Term Liabilities / b.) Net Fixed Assets	a.) Long Term Liabilities b.) Fixed Assets Net of Accumulated Straight Line Depreciation	2.8c / 2.4	Amount of long-term debt
24.	Community Support Provided	a.) Uncompensated Care as a Proportion of Total Expenses + b.) Taxes Paid as a Proportion of Total Expenses	a.) [(Expenses required to provide charity care to people with incomes <= 100% of the federal poverty level) + (Expenses required to provide charity care to people with incomes > 100% and <= 200% of the federal poverty level) + (bad debt expenses)] all divided by Total Expenses b.) Taxes Paid divided by Total Expenses.	[1.5*1.14/(1.3+1.8) + 1.6*1.14/(1.3+1.8) + 1.13 + 1.12i] / 1.14	Community Support Provided
25.	Medicaid Participation	a.) Medicaid Revenue / b.) Total Revenue	a.) Medicaid Revenue b.) Total Revenue	(1.1a + 1.2a) / 1.3	Medicaid Participation

Table C5
Indicator Definitions - Ambulatory Surgery Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
1.	Average Gross Patient Revenue / Case	a.) Gross Patient Revenue / b.) Case	a.) Total Gross Patient Revenue b.) Cases	1.1d / 5.1	Average full charge per case
2.	Average Net Patient Revenue / Case	a.) Net Patient Revenue / b.) Case	a.) Total Net Patient Revenue b.) Cases	1.5 / 5.1	Average net charge per case
3.	Average Gross Patient Revenue / Procedure	a.) Gross Patient Revenue / b.) Procedure	a.) Total Gross Patient Revenue b.) Procedures	1.1d / 5.2	Average full charge per procedure
4.	Average Net Patient Revenue / Procedure	a.) Net Patient Revenue / b.) Procedure	a.) Total Net Patient Revenue b.) Procedures	1.5 / 5.2	Average net charge per procedure
5.	Cost / Case	a.) Cost / b.) Case	a.) Total Operating Expenses b.) Cases	1.12 / 5.1	Cost per case
6.	Cost / Procedure	a.) Cost / b.) Procedure	a.) Total Operating Expenses b.) Procedures	1.12 / 5.2	Cost per procedure
7.	Labor Cost / Case	a.) Labor Cost / b.) Case	a.) Total Labor Costs b.) Cases	1.7f / 5.1	Labor cost per case
8.	Non-Labor Cost / Case	a.) Non-Labor Cost / b.) Case	a.) Total Non-Labor Costs b.) Cases	1.8f / 5.1	Non-Labor cost per case
9.	Capital Cost / Case	a.) Capital Cost / b.) Case	a.) Total Capital Costs as defined by Medicare b.) Cases	1.9f / 5.1	Capital cost per case

Table C5 *continued*
Indicator Definitions - Ambulatory Surgery Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
10.	Operating Income / Case	a.) Operating Income / b.) Case	a.) Net Patient Revenue plus Other Operating Revenue less Total Operating Expenses b.) Cases	1.13 / 5.1	Operating income per case
11.	Labor Cost / Procedure	a.) Labor Cost / b.) Procedure	a.) Total Labor Costs b.) Procedures	1.7f / 5.2	Labor cost per procedure
12.	Non-Labor Cost / Procedure	a.) Non-Labor Cost / b.) Procedure	a.) Total Non-Labor Costs b.) Procedures	1.8f / 5.2	Non-Labor cost per procedure
13.	Capital Cost / Procedure	a.) Capital Cost / b.) Procedure	a.) Total Capital Costs as defined by Medicare b.) Procedures	1.9f / 5.2	Capital cost per procedure
14.	Operating Income / Procedure	a.) Operating Income / b.) Procedure	a.) Net Patient Revenue plus Other Operating Revenue less Total Operating Expenses b.) Procedures	1.13 / 5.2	Operating income per procedure
15.	Cases / Full Time Equivalent	a.) Cases / b.) Full Time Equivalent	a.) Cases b.) Total hours paid / 2080	5.1 / 5.7e	Cases per full time equivalent
16.	Procedures / Full Time Equivalent	a.) Procedures / b.) Full Time Equivalent	a.) Procedures b.) Total hours paid / 2080	5.2 / 5.7e	Procedures per full time equivalent
17.	Operating Room Utilization	a.) Total Actual Hours of Operating Room Use / b.) Total Available Hours of Operating Room Use	a.) Actual hours of operating room use b.) Available hours of operating room use	5.5 / 5.6	Utilization of operating rooms

Table C5 *continued*
Indicator Definitions - Ambulatory Surgery Hospitals

	Indicator	Elements of the Indicator	Element Definitions	Historical Filing Data Elements	Indicator Description
18.	Total Margin	a.) Revenue and Gains in Excess of Expenses and Losses / b.) Total Net Operating Revenue + c.) Net Non-Operating Gains	a.) Revenue and Gains in Excess of Expenses and Losses b.) Total Net Operating Revenue c.) Net Non-Operating Gains	(1.13 + 1.14) / (1.5 + 1.6 + 1.14)	Operating and non-operating profit
19.	Return on Assets (cash)	a.) Cash Flow from Operations / b.) Total Unrestricted Assets	a.) Cash Flow from Operations b.) Total Unrestricted Assets	4.1 / 2.6	Financial return from investment in assets in cash terms
20.	Cash Debt Coverage	a.) Cash Flow from Operations / b.) Current Debt Service	a.) Cash Flow from Operations b.) Current Debt Service	(4.1 + 4.2) / (4.2 + 4.4)	Ability to repay long-term debt
21.	Fixed Asset Financing Ratio	a.) Long Term Liabilities / b.) Net Fixed Assets	a.) Long Term Liabilities b.) Fixed Assets Net of Accumulated Straight Line Depreciation	2.8e / 2.4	Amount of long-term debt
22.	Community Support Provided	a.) Uncompensated Care as a Proportion of Total Expenses + b.) Taxes Paid as a Proportion of Total Expenses	a.) [(Expenses required to provide charity care to people with incomes <= 100% of the federal poverty level) + (Expenses required to provide charity care to people with incomes > 100% and <= 200% of the federal poverty level) + (bad debt expenses)] all divided by Total Expenses b.) Taxes Paid divided by Total Expenses	[1.3*1.12/(1.1d + 1.6) + 1.4*1.12/(1.1d + 1.6) + 1.11 + 1.10i] / 1.12	Community Support Provided
23.	Medicaid Participation	a.) Medicaid Revenue / b.) Total Revenue	a.) Medicaid Revenue b.) Total Revenue	1.1a / 1.1d	Medicaid Participation

APPENDIX D
RANKING MATRICES

TABLE D1.
EXAMPLE: 1993 Virginia Hospital Efficiency & Productivity Ranking

DIMENSION OF PERFORMANCE		INDICATOR		HOSPITALS											
			DD	1	2	3	4	5	6	7	8	9	10	11	12
CHARGES	1.	Avg gross pt revenue per adj admission	v	4	3	1	2	3	2	1	4	1	3	4	2
	2.	Avg net pt revenue per adj admission	v	3	2	1	4	3	1	2	4	2	4	3	1
COST	3.	Cost per adj admission	v	2	4	1	2	4	1	3	2	1	3	4	3
	4.	Labor cost per adj admission	v	4	2	2	3	4	1	4	3	1	3	2	1
	5.	Non-labor cost per adj admission	v	4	3	1	3	4	1	4	2	1	2	2	3
	6.	Capital cost per adj admission	v	3	4	2	2	3	2	3	4	1	1	4	1
PRODUCTIVITY	7.	FTE per adj occupied bed	v	3	2	2	2	4	1	1	4	3	3	4	1
AND	8.	Paid hours per adj admission	v	2	3	2	3	4	1	1	4	2	4	3	1
UTILIZATION	9.	Staffed beds occupancy	^	2	4	1	2	4	1	2	3	1	3	4	3
	10.	Licensed beds occupancy	^	4	3	1	2	3	2	1	4	1	3	4	2
	11.	Special services utilization	^	2	3	2	4	4	1	2	3	1	4	3	1
	12.	Case-mix adj average length of stay	v	3	2	1	3	4	1	2	4	2	3	4	1
FINANCIAL	13.	Total margin	^	2	3	1	2	4	1	3	4	1	4	3	2
VIABILITY	14.	Return on assets (cash)	^	2	4	2	3	3	1	1	3	1	4	4	2
	15.	Cash debt coverage	^	4	3	1	2	3	2	1	4	1	3	4	2
	16.	Fixed asset financing ratio	v	4	3	1	4	2	3	3	2	2	4	1	1
COMMUNITY	17.	Community support provided	^	1	2	3	4	4	3	2	3	1	2	4	1
SUPPORT	18.	Medicaid participation	^	1	1	4	3	4	2	1	2	2	4	3	3
RANKING		Average score		2.8	2.8	1.6	2.8	3.6	1.5	2.1	3.3	1.4	3.2	3.3	1.7
		Top quartile				*			*			*			

Notes:

Adjusted patient days include adjustments for case-mix and outpatient visits.
DD is the desired direction of the indicatior.
Each number represents a quartile score for a hospital on an indicator.
*Hospitals are in the top 25%.

TABLE D2.
EXAMPLE: 1993 Virginia Nursing Home Efficiency & Productivity Ranking

DIMENSION OF PERFORMANCE		INDICATOR	NURSING HOMES												
			DD	1	2	3	4	5	6	7	8	9	10	11	12
CHARGES	1.	Avg gross pt revenue per adj day	v	3	2	1	3	4	1	2	4	2	3	4	1
	2.	Avg net pt revenue per adj day	v	2	3	2	4	4	1	2	3	1	4	3	1
COSTS	3.	Cost per adj day	v	2	4	1	3	3	1	2	3	1	4	4	2
	4.	Labor cost per adj day	v	4	2	2	3	4	1	3	4	1	2	1	3
	5.	Non-labor cost per adj day	v	3	2	1	4	4	2	4	3	2	1	1	3
	6.	Capital cost per adj day	v	2	4	1	2	2	3	4	4	1	3	3	1
PRODUCTIVITY	7.	Paid hours per adj patient day	v	3	2	2	2	4	1	1	4	3	3	4	1
FINANCIAL	8.	Total margin	^	2	3	1	2	4	1	3	4	1	4	2	3
VIABILITY	9.	Return on assets (cash)	^	2	4	2	3	3	1	1	3	1	4	4	2
	10.	Cash Debt coverage	^	4	3	1	2	3	2	1	4	1	3	4	2
	11.	Fixed asset financing ratio	v	4	3	1	4	2	3	3	2	2	4	1	1
COMMUNITY	12.	Community support provided	^	1	2	3	4	4	3	2	2	1	3	4	1
SUPPORT	13.	Medicaid participation	^	1	2	3	4	4	3	2	2	3	1	4	1
RANKING		Average score		2.5	2.8	1.6	3.1	3.5	1.8	2.3	3.2	1.5	3.0	3.0	1.7
		Top quartile				*						*			*

Notes:

Adjusted patient days include adjustments for case-mix and outpatient visits.
DD is the desired direction for the indicator.
Each number represents a quartile score for a nursing home on an indicator.
*Nursing Homes are in the top 25%.

Revised 8/11/94

APPENDIX E
ORIGINALLY ADOPTED AND REVISED SETS OF INDICATORS

TABLE E1. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Acute Care Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Average Gross Patient Revenue Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length of stay on hospital rankings
Average Net Patient Revenue Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length of stay on hospital ranking.
Average Gross Patient Revenue Per Adjusted Admission	Average Gross Patient Revenue Per Adjusted Admission	The indicator was retained unchanged.
Average Net Patient Revenue Per Adjusted Admission	Average Net Patient Revenue Per Adjusted Admission	The indicator was retained unchanged.
Cost Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length of stay on hospital rankings.
Cost Per Adjusted Admission	Cost Per Adjusted Admission	The indicator was retained unchanged.
Labor Cost Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length of stay on hospital rankings.
Non-Labor Cost Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length stay on hospital rankings.
Capital Cost Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length stay on hospital rankings.
Operating Income Per Adjusted Patient Day		The indicator was eliminated to reduce the influence of average length of stay on hospital rankings.
Labor Cost Per Adjusted Admission	Labor Cost Per Adjusted Admission	The indicator was retained unchanged.
Non-Labor Cost Per Adjusted Admission	Non-Labor Cost Per Adjusted Admission	The indicator was retained unchanged.

TABLE E1 *continued*. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Acute Care Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Capital Cost Per Adjusted Admission	Capital Cost Per Adjusted Admission	The indicator was retained unchanged.
Operating Income Per Adjusted Admission		The indicator was eliminated to reduce the impact of profitability on hospital rankings.
Adjusted Patient Day Per Full-Time Equivalent	Full-Time Equivalents Per Adjusted Occupied Bed	The indicator was changed to be more meaningful to the hospital industry.
Adjusted Admissions Per Full-Time Equivalent	Paid Hours Per Adjusted Admission	The indicator was changed to be more meaningful to the hospital industry.
Staffed Beds Occupancy	Staffed Beds Occupancy	The indicator was retained unchanged.
Licensed Beds Occupancy	Licensed Beds Occupancy	The indicator was retained unchanged.
Special Services Utilization	Special Services Utilization	The mathematical formula used to calculate this indicator was changed after the initial formula was found during the field testing to be inadequate.
	Case-Mix-Adjusted Average Length of Stay	The indicator was added to replace the deleted indicators that used adjusted patient days in the denominator. Average length of stay adjusted for case mix shows how well hospitals manage patient days.
Replacement Viability		The indicator was eliminated because data for its construction was found in field testing to be difficult to obtain.
Total Margin	Total Margin	The indicator was retained unchanged.
Return on Assets (cash)	Return on Assets (cash)	The indicator was retained unchanged.
Cash Debt Coverage	Cash Debt Coverage	The mathematical formula used to calculate this indicator was changed after the initial formula was found during the field testing to be inadequate.

TABLE E1 *continued*. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Acute Care Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Fixed Asset Financing Ratio	Fixed Asset Financing Ratio	The indicator was retained unchanged.
Community Support Provided	Community Support Provided	The indicator was retained unchanged.
Medicaid Participation	Medicaid Participation	The indicator was retained unchanged.

TABLE E2. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Nursing Homes

Initial Set of Indicators	Revised Set of Indicators	Comments
Average Gross Patient Revenue Per Adjusted Patient Day	Average Gross Patient Revenue Per Adjusted Patient Day	The indicator was retained unchanged.
Average Net Patient Revenue Per Adjusted Patient Day	Average Net Patient Revenue Per Adjusted Patient Day	The indicator was retained unchanged.
Cost Per Adjusted Patient Day	Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Labor Cost Per Adjusted Patient Day	Labor Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Non-Labor Cost Per Adjusted Patient Day	Non-Labor Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Capital Cost Per Adjusted Patient Day	Capital Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Operating Income Per Adjusted Patient Day		The indicator was eliminated to reduce the impact of profitability on nursing home rankings.
Adjusted Patient Day Per Full-Time Equivalent	Paid Hours Per Adjusted Patient Day	The indicator was changed to be more meaningful to the nursing home industry.
Staffed Beds Occupancy		The indicator was eliminated due to insufficient variation among nursing homes.
Licensed Beds Occupancy		The indicator was eliminated due to insufficient variation among nursing homes.
Replacement Viability		The indicator was eliminated because data for its construction were found in field testing to be difficult to obtain.
Total Margin	Total Margin	The indicator was retained unchanged.
Return on Assets (cash)	Return on Assets (cash)	The indicator was retained unchanged.

TABLE E2 *continued*. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Nursing Homes

Initial Set of Indicators	Revised Set of Indicators	Comments
Cash Debt Coverage	Cash Debt Coverage	The mathematical formula used to calculate this indicator was changed after the initial formula was found during field testing to be inadequate.
Fixed Asset Financing Ratio	Fixed Asset Financing Ratio	The indicator was retained unchanged.
Community Support Provided	Community Support Provided	The indicator was retained unchanged.
Medicaid Participation	Medicaid Participation	The indicator was retained unchanged.

TABLE E3. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Psychiatric Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Average Gross Patient Revenue Per Adjusted Patient Day	Average Gross Patient Revenue Per Adjusted Patient Day	The indicator was retained unchanged.
Average Net Patient Revenue Per Adjusted Patient Day	Average Net Patient Revenue Per Adjusted Patient Day	The indicator was retained unchanged.
Average Gross Patient Revenue Per Adjusted Admission	Average Gross Patient Revenue Per Adjusted Admission	The indicator was retained unchanged.
Average Net Patient Revenue Per Adjusted Admission	Average Net Patient Revenue Per Adjusted Admission	The indicator was retained unchanged.
Cost Per Adjusted Patient Day	Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Cost Per Adjusted Admission	Cost Per Adjusted Admission	The indicator was retained unchanged.
Labor Cost Per Adjusted Patient Day	Labor Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Non-Labor Cost Per Adjusted Patient Day	Non-Labor Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Capital Cost Per Adjusted Patient Day	Capital Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Operating Income Per Adjusted Patient Day	Operating Income Per Adjusted Patient Day	The indicator was retained unchanged.
Labor Cost Per Adjusted Admission	Labor Cost Per Adjusted Admission	The indicator was retained unchanged.
Non-Labor Cost Per Adjusted Admission	Non-Labor Cost Per Adjusted Admission	The indicator was retained unchanged.
Capital Cost Per Adjusted Admission	Capital Cost Per Adjusted Admission	The indicator was retained unchanged.
Operating Income Per Adjusted Admission	Operating Income Per Adjusted Admission	The indicator was retained unchanged.

TABLE E3 *continued*. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Psychiatric Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Full-Time Equivalents Per Adjusted Patient Day	Full-Time Equivalents Per Adjusted Occupied Bed	The indicator was changed to be more meaningful to the hospital industry.
Full-Time Equivalents Per Adjusted Admission	Paid Hours Per Adjusted Admission	The indicator was changed to be more meaningful to the hospital industry.
Staffed Beds Occupancy	Staffed Beds Occupancy	The indicator was retained unchanged.
Licensed Beds Occupancy	Licensed Beds Occupancy	The indicator was retained unchanged.
Replacement Viability		The indicator was eliminated because data for its construction were found in field testing to be difficult to obtain.
Total Margin	Total Margin	The indicator was retained unchanged.
Return on Assets (cash)	Return on Assets (cash)	The indicator was retained unchanged.
Cash Debt Coverage	Cash Debt Coverage	The indicator was retained unchanged.
Fixed Asset Financing Ratio	Fixed Asset Financing Ratio	The indicator was retained unchanged.
Community Support Provided	Community Support Provided	The indicator was retained unchanged.

TABLE E4. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Rehabilitation Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Average Gross Patient Revenue Per Adjusted Patiert Day	Average Gross Patient Revenue Per Adjusted Patient Day	The indicator was retained unchanged.
Average Net Patient Revenue Per Adjusted Patient Day	Average Net Patient Revenue Per Adjusted Patient Day	The indicator was retained unchanged.
Average Gross Patient Revenue Per Adjusted Admission	Average Gross Patient Revenue Per Adjusted Admission	The indicator was retained unchanged.
Average Net Patient Revenue Per Adjusted Admission	Average Net Patient Revenue Per Adjusted Admission	The indicator was retained unchanged.
Cost Per Adjusted Patient Day	Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Cost Per Adjusted Admission	Cost Per Adjusted Admission	The indicator was retained unchanged.
Labor Cost Per Adjusted Patient Day	Labor Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Non-Labor Cost Per Adjusted Patient Day	Non-Labor Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Capital Cost Per Adjusted Patient Day	Capital Cost Per Adjusted Patient Day	The indicator was retained unchanged.
Operating Income Per Adjusted Patient Day	Operating Income Per Adjusted Patient Day	The indicator was retained unchanged.
Labor Cost Per Adjusted Admission	Labor Cost Per Adjusted Admission	The indicator was retained unchanged.
Non-Labor Cost Per Adjusted Admission	Non-Labor Cost Per Adjusted Admission	The indicator was retained unchanged.

TABLE E4 *continued*. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Rehabilitation Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Capital Cost Per Adjusted Admission	Capital Cost Per Adjusted Admission	The indicator was retained unchanged.
Operating Income Per Adjusted Admission	Operating Income Per Adjusted Admission	The indicator was retained unchanged.
Full-Time Equivalents Per Adjusted Patient Day	Full-Time Equivalents Per Adjusted Occupied Bed	The indicator was changed to be more meaningful to the hospital industry.
Full-Time Equivalents Per Adjusted Admission	Paid Hours Per Adjusted Admission	The indicator was changed to be more meaningful to the hospital industry.
Staffed Beds Occupancy	Staffed Beds Occupancy	The indicator was retained unchanged.
Licensed Beds Occupancy	Licensed Beds Occupancy	The indicator was retained unchanged.
Replacement Viability		The indicator was eliminated because data for its construction were found in field testing to be difficult to obtain.
Total Margin	Total Margin	The indicator was retained unchanged.
Return on Assets (cash)	Return on Assets (cash)	The indicator was retained unchanged.
Cash Debt Coverage	Cash Debt Coverage	The indicator was retained unchanged.
Fixed Asset Financing Ratio	Fixed Asset Financing Ratio	The indicator was retained unchanged.
Community Support Provided	Community Support Provided	The indicator was retained unchanged.
Medicaid Participation	Medicaid Participation	The indicator was retained unchanged.

TABLE E5. The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Ambulatory Surgical Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Average Gross Patient Revenue Per Case	Average Gross Patient Revenue Per Case	The indicator was retained unchanged.
Average Net Patient Revenue Per Case	Average Net Patient Revenue Per Case	The indicator was retained unchanged.
Average Gross Patient Revenue Per Procedure	Average Gross Patient Revenue Per Procedure	The indicator was retained unchanged.
Average Net Patient Revenue Per Procedure	Average Net Patient Revenue Per Procedure	The indicator was retained unchanged.
Cost Per Case	Cost Per Case	The indicator was retained unchanged.
Cost Per Procedure	Cost Per Procedure	The indicator was retained unchanged.
Labor Cost Per Case	Labor Cost Per Case	The indicator was retained unchanged.
Non-Labor Cost Per Case	Non-Labor Cost Per Case	The indicator was retained unchanged.
Capital Cost Per Case	Capital Cost Per Case	The indicator was retained unchanged.
Operating Income Per Case	Operating Income Per Case	The indicator was retained unchanged.
Labor Cost Per Procedure	Labor Cost Per Procedure	The indicator was retained unchanged.
Non-Labor Cost Per Procedure	Non-Labor Cost Per Procedure	The indicator was retained unchanged.
Capital Cost Per Procedure	Capital Cost Per Procedure	The indicator was retained unchanged.
Operating Income Per Procedure	Operating Income Per Procedure	The indicator was retained unchanged.
Full-Time Equivalents Per Case	Cases Per Full-Time Equivalent	The indicator was changed to be more meaningful to the hospital industry.

TABLE E5 *continued.* The Initially Adopted and Revised Sets of Indicators for Measuring Efficiency and Productivity in Ambulatory Surgical Hospitals

Initial Set of Indicators	Revised Set of Indicators	Comments
Full-Time Equivalent Per Procedure	Procedures Per Full-Time Equivalent	The indicator was changed to be more meaningful to the hospital industry.
Operating Room Utilization	Operating Room Utilization	The indicator was retained unchanged.
Replacement Viability		The indicator was eliminated because data for its construction were found in field testing to be difficult to obtain.
Total Margin	Total Margin	The indicator was retained unchanged.
Return on Assets (cash)	Return on Assets (cash)	The indicator was retained unchanged.
Cash Debt Coverage	Cash Debt Coverage	The indicator was retained unchanged.
Fixed Asset Financing Ratio	Fixed Asset Financing Ratio	The indicator was retained unchanged.
Community Support Provided	Community Support Provided	The indicator was retained unchanged.
Medicaid Participation	Medicaid Participation	The indicator was retained unchanged.