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FINAL REPORT

DURABLE MEDICAL EQUIPMENT SUPPLIER PRODUCT AND SERVICE COST STUDY

HCFA Contract No. 500-95-0044

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Jing Xing Health and Safety Resources, Inc. provided assistance to the Health Care Financing Administration (HCFA) in conducting a study of variations in durable medical equipment (DME) supplier costs. The project entitled "Durable Medical Equipment Supplier Product and Service Cost Study", was completed under Contract Number HCFA 500-95-0044.

The project was initiated in response to Section 135(c)(1) of Public Law 103-432, the Social Security Act Amendments of 1994, which requires HCFA to "collect data on supplier costs of durable medical equipment for which payment may be made under Part B of the medicare program, and analyze such data to determine the proportions of such costs attributable to the service and product components of furnishing such equipment and the extent to which such proportions vary by type of equipment and by the geographic region in which the supplier is located."

In 1994, allowed charges under the Medicare program for the purchase and rental of DME items amounted to almost $4 billion. Over the years, concerns have arisen over 1) differences between Medicare prices for, and supplier costs of, providing DME items and 2) whether the fee schedules are reasonably adjusted to reflect current market forces.

The major project tasks consisted of the following:

1. Assist in the preparations, arrangements and the conduct of a meeting of a Federal Advisors Panel.

2. Assist in the preparations, arrangements and the conduct of a meeting with representatives of the DME supplier industry.

3. Conduct a literature search and review of studies, articles and reports on DME under Medicare and DME supplier costs and their variation.

4. Assist in the acquisition and analysis of available government data, industry public information and data supplied voluntarily by the supplier industry regarding DME supplier costs and their variation.

5. Prepare an analytical report on data availability and options for gathering additional data that might be used to establish a Medicare geographic payment adjustment.

Several issues arise in interpreting and defining the specific requirements of the congressional mandate to study the variations in supplier costs of DME items. Some of these key issues are:

1. Defining and determining specific cost share categories of DME items.

2. Determining which DME items to include. There are hundreds of DME items that fall into several HCFA categories. Many require little or no servicing, others are customized or require frequent and substantial servicing. Further, some items are purchased and others are rented.

3. Determining the appropriate geographic levels (e.g., urban/rural, region, state, etc.) to analyze the extent of variation in product and service cost shares.

In summary, the objectives of the project tasks were 1) to search for available data and 2) lacking required data, to investigate alternative options for responding to the congressional mandate. Several conclusions were reached after completing the literature reviews and consulting with members of the Federal Advisory Panel and representatives of the DME industry.

At one level, it is intuitively obvious that certain DME categories require a much larger service component than others. To illustrate, the service component in providing oxygen equipment is a larger proportion of costs than, for example, selling a walker or cane. The latter does not involve very much, if any, assembly, patient education, maintenance, etc.

Although it is obvious that there is variation in product and service cost shares, the data searches made in this study did not yield the kinds of data necessary to provide specific answers to the questions raised in the Congressional mandate on variations in the product and service cost shares of DME items. There is some limited data available for estimating the overall product and service cost shares for all DME items. However, data could not be acquired within the scope of this study on the levels of variation in cost shares by type of DME item or by geographic location.

Cost share data is not the kind of information that is generally available at the product level in the accounting systems of DME suppliers. Also, there is a lack of standardization in both the private industry and government in defining the specific product and service components of DME costs.

There was a general consensus among study participants that excluding the impact of volume purchasing the costs of acquiring DME items (i.e., wholesale costs) are generally the same around the country with the possible exceptions of Alaska and Hawaii where shipping costs are greater.

There was also general agreement that service costs do vary with the largest geographic variation resulting from labor costs. Limited tests using Medicare data provide support for the theory that geographic variation in the costs of providing DME

is primarily caused by service components.

Assuming that most of the geographic variation in DME costs is attributable to service components, statistical tests were made to determine if Medicare fee schedule data would be highly correlated with geographic variations in various wage indices including those used for determining Medicare hospital and physician payments. The results were negative indicating that this readily available data is not useful for predicting variations in DME costs.

There are a number of alternatives available which HCFA can consider to determine variations in DME cost shares. The first is to convene an expert panel of individuals which would utilize a consensus or Delphi-type process, to attempt to determine "average" cost share estimates for commonly furnished items of DME.

Using a market basket of DME items, a national survey of DME suppliers could be conducted to develop a geographic cost index. Such a survey which would be difficult, relatively costly, and require compliance by DME suppliers, may be the only way to currently develop a geographic payment index based on actual DME cost experience.

Another alternative would be to estimate variations in DME cost shares and develop a geographic payment index using proxy data currently available without having to rely on data that otherwise would have to be acquired from DME suppliers.

One example of such a conceptual approach is described in this report. It is based on accounting identities to provide an index of the ratios of service costs to total costs by geographic area. If tests of the methodology were to be successful, it would provide comparisons of index levels for different geographic areas and have potential use for addressing the data requirements in the Congressional mandate. However, it should be noted that a geographic payment index constructed using proxy data and a complex methodology might not be well-accepted by the DME industry.

In summary, the construction of a geographic payment index for durable medical equipment will present a very difficult challenge to HCFA because of 1) the inability of DME suppliers to readily provide the kinds of item specific cost data normally used by HCFA in developing geographic payment indices, 2) the lack of data and standardization on cost shares by product type, and 3) the likely objections that would be raised by any methodology that estimates cost shares and geographic variation using proxy data.

INTRODUCTION

Background

The purpose of this contract is to provide the Health Care Financing Administration (HCFA) with assistance in conducting a study of the variations in durable medical equipment (DME) supplier costs.

DME is covered under Part B of the Medicare program. It includes medical equipment prescribed for use in the home and encompasses such products as oxygen equipment, wheelchairs, hospital beds, nebulizers, canes, walkers and other equipment.

In 1994, allowed charges under the Medicare program for the purchase and rental of DME items amounted to almost $4 billion. Nearly two thirds of the charges represented rentals of DME. Determinations on whether payments should be made on the basis of either rental or purchase depend on which is more economical or practical.

Medicare classifies DME into several payment categories as follows:

* Inexpensive or other routinely purchased DME.
* Items requiring frequent and substantial servicing.
* Customized items.
* Oxygen and oxygen equipment.
* Other items of DME (capped rental items).

Since 1989, Medicare has used fee schedules to set payment rates for each category of DME. The fee schedules are adjusted annually by a covered item update factor. For the most part, claims and other administrative requirements are processed through four Durable Medical Equipment Regional Carriers (DMERCs).

Over the years, concerns have arisen over 1) differences between Medicare prices for, and supplier costs of, providing DME items and 2) whether the fee schedules are reasonably adjusted to reflect current market forces. In response to these concerns, several actions have been taken. For example, Medicare prices for certain DME items can be adjusted by the inherent reasonableness provisions of the regulatory process. Another is a demonstration project that HCFA is developing to test whether competitively bid prices can be used to purchase certain kinds of DME for Medicare beneficiaries. This demonstration and other competitive bidding experiences (e.g., Department of Veterans Affairs and some state Medicaid programs) may also provide HCFA with information on the geographic variations in DME costs.

This project was initiated in response to Section 135(c)(1) of Public Law 103-432, the Social Security Act Amendments of 1994, which requires HCFA to study and report on the variations in product cost shares and the service cost shares for DME items. Congress also wanted to know whether these cost shares vary by type of equipment, and whether they vary geographically.

Congressional Mandate

The following language is from Section 135(c) of P.L. 103-42, the Social Security Amendments of 1994:

(c) STUDY OF VARIATIONS IN DURABLE MEDICAL EQUIPMENT SUPPLIER COSTS.--

(1) COLLECTION AND ANALYSIS OF SUPPLIER COST DATA. -- The Administrator of the Health Care Financing Administration shall, in consultation with appropriate organizations, collect data on supplier cost of durable medical equipment for which payment may be made under Part B of the medicare program, and shall analyze such data to determine the proportions of such costs attributable to the service and product components of furnishing such equipment and the extent to which such proportions vary by type of equipment and by the geographic region in which the supplier is located.

(2) DEVELOPMENT OF GEOGRAPHIC ADJUSTMENT INDEX; REPORTS -- Not later than July 1, 1995 --

(A) the Administrator shall submit a report to the Committee on Energy and Commerce and Ways and Means of the House of Representatives and the Committee on Finance of the Senate on the data collected and the analysis conducted under paragraph (1), and shall include in such report the Administrator's recommendations for a geographic cost adjustment index for suppliers of durable medical equipment under the Medicare program and an analysis of the impact of such proposed index on payments under the Medicare program; and

(B) the Comptroller General shall submit a report to the Committee on Energy and Commerce and Ways and Means of the House of Representatives and the Committee on Finance of the Senate analyzing on a geographic basis the supplier costs of durable medical equipment under the Medicare program.

In response to this mandate, the HCFA Administrator submitted an interim report to the Chairman, Committee on Ways and Means, House of Representatives. The report briefly described this project and stated that a final report would be provided within 90 days of receipt of findings from the study.

DISCUSSION

Issues in Determining Requirements

There are a number of issues that arise in interpreting and defining the specific requirements of the congressional mandate to study variations in supplier costs of DME items. These issues have a direct impact on which methodological approaches might best be used to determine the availability of, and how to acquire, the data required to meet project objectives. These key issues are described below.

Defining Cost Shares

Defining and determining specific cost share categories of DME items in a standard manner is a difficult task. There are no standard definitions used universally for categories of product costs, service costs and overhead. For example, product cost can be defined as the wholesale cost of a DME item. Alternatively, product costs can be defined more broadly to include shipping, storage, assembly, and possibly even the costs associated with selling the item.

The service component presents the same dilemma; it can be defined very narrowly to include patient/family education, set up, delivery, maintenance and repairs with all other costs considered product costs. Also, neither the service nor product component clearly includes such costs as authorization, billing, supplier overhead, etc.

The General Accounting Office in its report entitled "Medicare, Effect of Durable Medical Equipment Fee Schedules on Six Suppliers' Profits", November 1991 (see Appendix C) defined cost categories as follows:

* Direct - what suppliers paid for items of DME.
* Indirect - include costs that are related to providing DME to the patient, e.g., delivery, set up, education.
* Overhead - not directly related to providing equipment, e.g., space, utilities, marketing.

At the onset of the project, it was determined that it would be necessary for our study to be flexible in defining product and service cost shares. Since there is a lack of standardization, definitions might best be determined by the types of data that became available. Also, based on concerns over the potential willingness of suppliers to reveal their costs, we did not attempt to acquire levels of cost data, but rather the shares of costs represented by product and service components.

DME Categories

There are hundreds of DME items that fall into several HCFA payment

categories. Many require little or no servicing, others are customized or require frequent and substantial servicing. Further, some items are purchased and others are rented. Any attempt to study the full range of DME items would be well beyond the scope of this project.

Thus, we concluded that the selection of DME categories and items for such a study should be based on objectives which attempted to avoid over complication. It was determined that the legislative language specifically required a study of only DME items and thus, prosthetics, orthotics and supplies were not included. It was also determined that a reasonable approach would require selecting representative types of equipment and distinguishing rentals and purchases.

Geographic Variation

The Congressional mandate requires a study to determine any variations in costs by the geographic region in which the supplier is located. It should be noted that developing a geographic cost adjustment index (Section (c)(2) of the legislation) was not required as part of this specific project.

Determining the appropriate levels of geographic analysis (e.g., urban/rural, region, state, etc.) is a difficult task. Currently, the Medicare fee schedules are established on a state-wide basis. There has not been any expression of interest on the part of the supplier community or Congress to establish fee schedules distinguishing, for example, between urban and rural areas in a state. At the same time, it is entirely possible that the intra-state variation in costs is as great as the variation between states. Others, including representatives of the DME industry have suggested that while rural areas may have lower labor and rental costs, these differences might be offset by, for example, substantially higher delivery costs.

Data may be more readily available by Medicare DMERC regions. However, this level of aggregation would probably be too broad for use in this study and not representative of geographic variation. Other possibilities include focussing on a few high and low cost expense areas, using the geographic practice cost indices used for paying physicians under Medicare as a guide to selecting such areas.

As with the other issues described above, it was decided to be as flexible as possible under the assumption that data obtained in the study would shed additional light on determining what the appropriate levels of geographic variation should be.

Overview of Major Tasks

The purpose of this project is to provide HCFA with assistance in conducting a study on the variations in DME supplier costs. The study is required for preparing a mandated report to Congress. Its duration is approximately 8 months.

In providing this assistance, contractor staff conferred regularly with HCFA staff regarding the methodology and status of all project tasks. The major tasks can be summarized as follows:

1. Assist in the preparations, arrangements and the conduct of a meeting of a Federal Advisors Panel.

2. Assist in the preparations, arrangements and the conduct of a meeting with representatives of the DME supplier industry.

3. Conduct a literature search and review of studies, articles and reports on DME under Medicare and DME supplier costs and their variation. Prepare a bibliography and provide copies of pertinent reports.

4. Assist in the acquisition and analysis of available government data, industry public information and data supplied voluntarily by the supplier industry regarding DME supplier costs and their variation.

5. Prepare an analytical report on data availability and options for gathering additional data that might be used to establish a Medicare geographic payment adjustment.

6. Prepare a final report summarizing the tasks performed under the contract.

A detailed description of the methods used, and findings from, these tasks is presented in the following sections.

Federal Advisory Panel

The first major task required convening a meeting of Federal advisors to provide advice to HCFA on its study of the variations in DME supplier costs. This group met at HCFA headquarters in Baltimore, Maryland on December 8, 1995. Appendix A is a report which describes the proceedings and identifies the Federal Advisors.

The panel consisted of advisors from the General Accounting Office, the Department of Veteran Affairs, the Department of Defense, the General Services Administration and the Department of Health and Human Services. The HCFA members included staff from the Office of Research and Demonstrations, the Bureau of Policy Development and the Office of the Inspector General.

The discussions and pertinent findings are summarized as follows:

1. The Federal Agencies represented on the advisory group have limited data, primarily in GAO and VA reports (see Literature Report in Appendix C). However, they do not have the comprehensive data required to thoroughly conduct the mandated study on product/cost shares of DME items.

2. In regard to cost accounting records maintained by suppliers, the advisors were not aware of any such records maintained for individual DME items.

3. There was general agreement that labor costs (e.g., salaries, number of deliveries, travel distances, etc.) were the most likely form of geographic variation and that they have observed little, if any, geographic variation in wholesale costs of DME products.

4. The advisors agreed that for purposes of this study, it is reasonable to select a few representative types of DME items and to distinguish rentals and purchases.

Meeting with Representatives of DME Supplier Industry

The second major task required conducting a meeting with representatives of the DME industry. The objectives of the meeting were to inform the industry on the status of this study and to request any data or suggestions to enhance it.

Prior to this formal meeting, a preliminary meeting was held between contractor staff and officials of the Health Industry Distributors Association (HIDA) and the National Association for Medical Equipment Services (NAMES). Its purpose was to advise these trade organizations of the plans for a meeting with industry representatives, to define meeting requirements/objectives, to request assistance in developing an invitation list and to solicit other appropriate support.

The formal meeting with industry representatives was held at HCFA headquarters on January 25, 1996. Attending were representatives from DME suppliers and trade organizations, members of the Federal Advisor Panel, HCFA staff and contractor staff. Appendix B is a report which describes the proceedings and identifies meeting participants.

The discussions and pertinent findings can be summarized as follows:

1. DME industry representatives stated that supplier cost accounting records would not allow for determinations of the cost components for

individual DME items.

2. There was general consensus that the costs of acquiring a DME item (i.e., wholesale costs) are generally the same around the country with the possible exceptions of Alaska and Hawaii where shipping costs are greater.

3. There were lengthy discussions on the wide range in service cost components of providing specific DME items. The industry noted that for products which do not have a service cost component per se, suppliers still incur costs such as storage, selling and delivery. HIDA recommended that HCFA develop national supplier standards on the services it expected suppliers to provide for specific DME items.

4. Although most of the industry representatives believed that there were substantial cost differences between urban and rural areas, they were unsure of the direction of the differences. There was also general agreement that the largest geographic variation is in labor costs. However, no conclusions were reached on differences in geographic variation or at what levels the variation should be measured except for noting that DME costs are generally known to be high in some areas and low in others.

5. The diversity of the DME industry and how it impacts on this study was discussed in detail. There are about 150 thousand suppliers of DME ranging from national suppliers to individual drug stores selling a few products.

6. Although the industry representatives did not provide any data at the meeting, it was noted that any relevant data or information that they may be able to provide in the future would be treated as proprietary and confidential.

Appendix B describes these highlights and other topics in detail.

Literature Review

An extensive literature search and review was conducted of studies, articles and reports on DME under Medicare and of DME supplier costs and their variation. The review included:

1. Searches of online data base systems and healthcare lists.

2. HCFA sponsored studies.

3. Other Federal agency studies/sources.

4. Private sector studies/sources.

The literature review did not yield any reports or publications that provided direct answers to the specific questions raised in the Congressional mandate. Results were consistent with previous reports to Congress from the General Accounting Office which concluded that there is little uniformity among the cost accounting systems of the DME suppliers that they studied and that the calculation of costs down to the level of specific DME items is not a customary industry practice.

There are however, a few reports and surveys which provide useful insights such as expense proportions of revenue, revenue and income by size of firm, and regional variations by select expense and annual employee income categories.

Appendix C is a report which describes the literature review. It also contains a bibliography and copies of pertinent reports.

Data Availability and Options

This section contains a description of the 1) requirements for data acquisition, 2) array of options examined, and 3) analytical findings.

Requirements for Data Acquisition

The project required providing assistance to HCFA in the acquisition and analysis of data gathered on the product and service costs of DME suppliers in order to:

1. Determine the overall product and service cost shares for all types of equipment on a national basis.

2. Determine the variation in overall shares by type of product on a national basis.

3. Determine the geographic variation in overall cost shares for all types of equipment.

4. Determine the geographic variation by type of equipment.

Options Examined

Several options for acquiring and analyzing data to study the variations in DME supplier cost shares were examined. This section describes these activities.

1. Searches for Existing Cost Data

A major effort was made to determine the availability of DME cost share information from available government data, industry public information and data that might be supplied voluntarily by the supplier industry. As described earlier, these efforts included an extensive literature search, discussions with members of the Federal Advisors Panel, and meetings and contacts with representatives of the DME supplier industry.

The search did not yield the kinds of data necessary to provide direct answers to the questions raised in the Congressional mandate. The data was either not available in the required classifications or if any such data does exist, the DME supplier industry was reluctant to make it available for this study.

The findings were consistent with statements contained in previous GAO reports (see Appendix C) to Congress that concluded that there is little uniformity among the cost accounting systems of DME suppliers that they studied and that the calculation of costs down to the level of specific products is not a customary industry practice.

There are however, a few reports which did provide useful insights for addressing the first data requirement of estimating the overall product and service cost shares of DME items. The best example is the report "1995 HIDA Home Care Financial Performance Survey" which provides baseline data from 169 home care companies for the 1994 operating year.

Exhibit 11 of the HIDA report contains data on industry averages expressed as a percent of revenues. The following data are illustrative:

* Costs of goods rented and sold = 36% of revenue
* Total operating expenses = 55% of revenue
* Total personnel expenses = 33% of revenue
* Percent of total revenue from rentals = 55%

Exhibit 12 also provides relative industry average data on the percent of revenues by key expense categories such as wages and salaries, employee benefits, delivery expense, occupancy expense, etc. The report displays these types of data by size of firm and type of home care business.

HIDA's 1994 financial survey of home care dealers also provides some additional, but limited, information related to the third data requirement of determining the geographic variation in overall shares of DME costs. Expense categories expressed as a percent of net revenue are shown geographically by Medicare region. However, the report provides cautions on using this data because of sample size variation and

differences among individual firms that are included in the regions.

Copies of these entire reports were provided to HCFA under separate cover. Included in the reports are descriptions of the survey and definitions of data elements.

While the annual HIDA Financial Survey data report may be the most extensive source of DME cost data, it still does not answer the fundamental questions of this study. That is, it does not show product or service cost shares by type of DME item nor does it provide any reliable data on geographic variations in these costs.

2. Comparing Existing Payment Indexes

We also sought data needed for determining geographic variations in the cost shares for all DME items and by product type. As stated earlier, within the scope of this study, we were not able to acquire data on cost components by type of equipment. Also, since for the most part product costs do not vary geographically, most of the geographic variations in costs can be attributable to service costs.

Using Medicare fee schedule data, we thus conducted some brief statistical tests of the assumption that low service DME items have less state-to-state variation than frequently serviced items. We used 1989 base fee schedule amounts since these are the amounts on which the current fee schedule is based before various floor and ceiling caps were imposed. The statistics for a few select DME items are as follows:

Code	Description	Mean	StdDev	CV	From	To	Range/Mean
Low-Service							
E0105	Canes/crutches	$ 38	$ 2.3	0.060	$ 32	$ 44	0.316
E0135	Walkers	64	5.7	0.089	49	76	0.422
E0163	Commodes/bed pans	84	8.0	0.095	61	98	0.440
Frequently Serviced							
E0450	Volume Ventilator	749	151.2	0.202	443	1203	1.015
E0453	Therapeutic Vent.	453	115.0	0.254	169	764	1.313
E0460	Neg. Pressure Vent	538	187.5	0.349	38	1170	2.104
E0575	Nebulizer; Ultra.	79	19.3	0.243	38	128	1.139
E0935	Passive Mot. Ex.*	22	12.0	0.546	7	63	2.546

* NOTE: The data for this code in Virginia had a value of $248. Since it is an extreme value relative to other states, it was excluded from these statistics.

Although these statistics are based on charge data from Medicare fee schedules and not on DME cost information, they provide fairly strong support for the theory that geographic variation is primarily caused by service components of costs. Note that the differences in variation do not occur because the frequently serviced items happen to be more expensive. E0575 and E0935 have Medicare fee values of about the same magnitude as the low service items.

Also, in reviewing these statistics, note that the most common measure of variation, the standard deviation, does not work well for comparing the variation in variables of different magnitude. This is because variables of large magnitude tend to have large standard deviations relative to variables of small magnitude. Better measures are 1) the coefficient of variation (CV) which is the standard deviation divided by the mean or 2) the range (maximum value minus minimum value) divided by the mean.

Assuming that most of the geographic variation in DME costs is attributable to service components, we attempted to determine if geographic variations in DME costs would be highly correlated with geographic variations in wages for related occupations. Since DME cost data were not available, we used Medicare 1989 base fee schedule amounts before floor and ceiling caps were imposed as a best available proxy for cost data. An index was calculated for each state based on a market basket which included 27 DME items which were either high volume or high service items.

We calculated correlation coefficients between the fee index and a number of wage and expense indices. Included were indices similar to those used in Medicare regulations for updating both physician fee schedules and hospital payments. The remaining indices were based on 1990 United States Census salary data for selected service occupations.

We did not find any readily available data that does an adequate job of predicting geographic variations in Medicare DME fees as defined in this analysis. Each of the correlation coefficients had relatively low values. The poor correlation results could have resulted from several factors. First, it is possible that using state-to-state Medicare fee schedule amounts (with floor and ceiling caps removed) as a proxy for DME costs is not a valid assumption. Second, the analysis was limited to a market basket of 27 items out of hundreds of DME items that could have been chosen. Last, the data with which we correlated the DME index was limited to readily available data. A more thorough study of service occupations more specific to the DME industry might have led to improved results.

The analytical findings, as well as the methods utilized, are described in Appendix D which contains the report "Correlation Between the 1989 Base Fee Schedule Index for Durable Medical Equipment and Various Other Cost and Expense Indices".

3. An Alternative Approach to Estimating Cost Shares

Since data are not available, one approach to estimating cost shares for various items of durable medical equipment is to survey a random sample of DME dealers. Through onsite reviews or a mail survey process, HCFA would attempt to determine supplier cost shares. This would include the cost of the product, purchasing cost, warehousing, selling, assembly, patient education, delivery, maintenance, repairs, overhead, authorization, billing and collection.

Such a data collection approach is likely to be extremely costly. Moreover, given the fact that cost share data is not the kind of data that is generally available at the product level through a supplier's accounting records, it is not clear that a mail survey or onsite audits would yield reliable data. Finally, since the objective of the legislative provision is to determine the extent to which cost shares vary geographically, data collection would be complicated by the lack of any national averages. That is, the survey would need to identify "average" cost shares and the extent to which there is geographic variation.

Another approach that might be considered is to convene an expert panel of knowledgeable individuals which would utilize a consensus or Delphi-type process, to attempt to obtain cost share estimates for commonly-furnished items of DME. The advantage of such an approach is that it would be considerably less costly for the Medicare program and is probably more likely, to yield data that is credible to the supplier community. In addition, by starting with some average or national cost shares, it may be easier to obtain some estimates of geographic variation.

The process for estimating cost shares through a panel process is somewhat analogous to that used by HCFA to estimate direct costs for specific physician services as part of the study to determine physician practice expenses; i.e. the Clinical Practice Expert Panels (CPEP) process. The panels, which might be comprised of 10-12 knowledgeable individuals who represent a cross-section of the DME industry, would be asked to answer the following types of questions:

1. what are the kinds of services typically provided in furnishing a given item of DME (e.g. a wheelchair, hospital bed, oxygen therapy, etc.)?

2. what are the major categories of costs incurred by suppliers in furnishing these items of DME?

3. what portion of a product's selling price (share of the Medicare payment allowance?) is attributable to each of the cost categories? In other words, what are the cost shares attributable to furnishing the product?

4. which of the cost shares are likely to vary geographically and which are likely to be relatively constant?

5. if there are geographic differences in cost shares, are they related to urban or rural location, to State regulation, to differences in salary levels, rent, etc.

Thus, the panels could not only help HCFA estimate cost shares for various DME products but, potentially, could also assist HCFA in designing a process for constructing a geographic index.

Since it would be impractical and too time consuming for the panel to analyze the cost shares for the hundreds of items of DME, it would seem most efficient for the panels to focus on a representative number of different types of DME with varying service requirements. If necessary, the panel could be asked to assist in identifying these representative products. The expectation would be that ultimately some process would be established for extrapolating cost shares estimates for these studied items to the universe of DME products.

After cost shares are identified for a sample of representative products, HCFA could survey suppliers around the country to identify the extent to which there is geographic variation in the cost shares. By providing them with an estimate to begin with, suppliers who are surveyed may be more likely to provide reliable estimates as to whether and, if so, how their cost experience differs from the norm than they would if they had to make these estimates from scratch.

Alternatively, HCFA could use the cost share estimates derived through the panel process and use other data to estimate geographic variation in each of the cost shares. For example, if rent constitutes 10 percent of the costs of providing a product, HCFA could use published statistical data as a proxy for geographic variation in this cost share. Or, HCFA could survey suppliers and request data on "per square foot" space costs to construct a geographic index for this item.

Finally, as noted above, involving the supplier community in the process would enhance the acceptance and credibility of the process. From the standpoint of the DME industry, this would provide them with the opportunity to fully describe their service requirements in providing DME which has been a source of contention for many years.

4. Surveying DME Suppliers to Estimate Geographic Variation

This section summarizes the implications of attempting to collect DME cost share data through a national survey of suppliers. Appendix E is a report which provides the details of a study made to evaluate the ramifications of such a survey.

It identifies potential difficulties, describes a suggested methodological approach, and details various statistical issues such as survey design, stratification, sample size, and response rates.

There are several major problems which need to be addressed in conducting a survey to determine the geographic variation in the proportions of product and service costs of DME items. First is the large volume of individual DME items which have a wide range of service requirements. Second is the diversity of the supplier industry which includes dealers of various size, drug stores and doctors offices. Next is defining the composition of geographic areas. Also, if cost share data is not generally available for individual DME items through supplier accounting records it may be difficult obtaining voluntary compliance from suppliers to participate in a survey.

Thus, before designing and conducting a nationally representative survey, it will be important to first determine ways to maximize the potential for obtaining cooperation from the DME supplier industry. One such approach is to first identify "average" cost shares for select DME items through an expert panel as described in the previous section.

It will probably be necessary to limit a final survey (screening surveys may first be required) to the largest suppliers in each geographic area and to include only a limited number of DME items in the questionnaire.

A final point to be considered is that even if such a survey could successfully be used to develop geographic payment adjustors, the issue of how to update such rates must also be addressed.

5. An Approach Using Proxy Data

HCFA may wish to consider alternative approaches that rely on using existing government data sources to develop proxy data. Such an approach could be tested before determining whether or not to conduct a national survey for estimating the geographic variation in the proportions of product and service costs of DME items.

Described below is one such approach that provides an index of the ratios of service costs to total costs by geographic area. A conceptual framework for this methodology is provided by the following accounting identity applicable to any particular type of DME item:

Allowed charges/Units = Costs/Units x (Allowed Charges/Costs)

Let A_{it} = Allowed charges per unit for DME item i in area t.
P_{it} = Average production cost per unit for DME item i in area t.
S_{it} = Average service cost per unit for DME item i in area t.

M_{it} = Marginal profit rate for DME item i in area t.
Then $A_{it} = (P_{it} + S_{it})M_{it}$.

Comparing the same DME item in two different areas, say t = U, the nation, and t = C, the state of California:

$$(A_{iC}/A_{iU}) = \frac{(P_{iC}+S_{iC})M_{iC}}{(P_{iU}+S_{iU})M_{iU}}$$

First, assume that marginal profit rates are the same in all geographic areas (with 150,000 suppliers and no serious barriers to market entry, this is probably a reasonable assumption). Then it follows mathematically that the ratio of the proportion of service costs to total costs in Area C to the proportion of service costs to total costs in Area U is equal to the ratio of allowed charges per unit in the two areas divided by the ratio of service costs per unit in the two areas. Although this does not provide an absolute value for the proportion of service costs to total costs it does provide an index for the desired proportions for any area. The equation to consider is, then,:

$$\frac{\dfrac{S_{iC}}{(P_{iC}+S_{iC})}}{\dfrac{S_{iU}}{(P_{iU}+S_{iU})}} = \frac{\left(\dfrac{A_{iC}}{A_{iU}}\right)}{\left(\dfrac{S_{iC}}{S_{iU}}\right)}$$

The quantities on the right side of the equation can be determined from local or other governmental data sources.

The ratio for average allowed charges per unit for a particular DME item for the two areas can be obtained directly from the Medicare Carrier data base. The ratio for service costs per unit for a particular DME item for the two areas could be obtained from a composite index that is based on the following accounting identity:

Service cost/Units = (Costs/Hour) x (Distance/Contacts) x (Contacts/Units) x (Hours/Distance)

(Costs per Hour) = assume that costs per hour follow labor costs per hour. Total compensation per hour is available for any geographic area from HCFA's area wage index. While this index is derived only for hospital compensation, it probably is the best and most reliable index available to HCFA for general compensation in any geographic area.

(Contacts per Unit) = this index is available from the Medicare claims data base. It is simply the number of units of service per beneficiary user per year (or per other time period) for the particular DME item.

(Hours per Distance) = this is the inverse of a delivery velocity rate required to round out the identity. In the absence of any information, assume that no difference exists between areas for this variable.

(Distance per Contact) = the distance factor is frequently emphasized as a critical cost difference between areas. It would be useful to establish a distance index not only for this DME project but also for other medical care cost issues as well. Critical location factors available from Medicare files include the zip code of the recipient of the service. It would also be necessary to acquire the zip code of the supplier of the service. Files previously existed in the Census Bureau which established distances between zip code areas based on the longitude and latitude of the zip code centroid. One might assume that a government or private sector version still exists.

A composite service index can be calculated by multiplying the mean individual indexes for costs per hour, contacts per unit, and distance per contact for each area. Dividing the average allowed charge index ratio by the composite service cost index ratio provides a ratio of the differences in the proportion of service costs to total costs for the individual DME item. Summing all expenditure-weighted service-to-total cost ratios for all DME items provides an index measure of the proportion of service costs to total costs for all DME items.

In summary, this approach provides an index of the ratio of service costs to total costs by geographic area that allows comparisons of index levels between different areas.

Summary of Analytical Findings

Searches for existing cost data provided very limited information on the overall product and service cost shares of DME items. They did not provide the kinds of data necessary to meet the other data requirements of the Congressional mandate regarding cost variations by equipment category or geography.

Studies using existing Medicare payment index data (fee schedule data based on historic reasonable charges without caps imposed) had mixed results. This data support the theory that geographic variation in DME costs is primarily caused by service components of cost. However, tests to determine if this Medicare payment data would be highly correlated with geographic variations in various wage indices indicated that this readily available data was not useful for predicting variations in DME costs.

The other described options provide HCFA with alternatives in determining the variations in DME cost shares. First, the approach to estimate average cost shares through an expert panel address the requirements to determine overall cost shares and shares by type of DME item.

Next, the alternative to conduct a national survey, although difficult and costly, might provide the type of data required to develop a geographic cost index for a market basket of DME items.

The remaining alternative is developing a methodology that uses proxy data. The conceptual approach described in this report addresses all four of the data requirements in the Congressional mandate. HCFA might consider a preliminary design and test of this methodology since it is the least costly and might be accomplished using available data without relying on data from the DME industry.

Any decision to be made on which method would be best for developing a DME geographic payment index, should include consideration of the frequency and difficulty in updating the payment rates. Finally, as noted at the meeting of DME industry representatives, government geographic payment indices have historically been budget neutral.

CONCLUSIONS

For DME products, there is a wide range in the proportions of costs required to service the individual items. At one level, it is intuitively obvious that certain DME categories require a much larger service component than others. To illustrate, the service component in providing oxygen equipment is a larger proportion of costs than, for example, selling a walker or cane. The latter does not involve very much, if any, assembly, patient education, maintenance, etc.

Although it is obvious that there is variation in product and service cost shares, the data searches made in this study did not yield the kinds of data necessary to provide specific answers to the questions raised in the Congressional mandate on variations in the product and service cost shares of DME items. There is some limited data available for estimating the overall product and service cost shares for all DME items. However, data could not be acquired within the scope of this study on the levels of variation in cost shares by type of DME item or by geographic location.

Cost share data is not the kind of information that is generally available at the product level in the accounting systems of DME suppliers. Also, there is a lack of standardization in both private industry and government in defining the specific product and service components of DME costs.

There was a general consensus among study participants that excluding the impact of volume purchasing the costs of acquiring DME items (i.e., wholesale costs) are generally the same around the country with the possible exceptions of Alaska and Hawaii where shipping costs are greater.

There was also general agreement that service costs do vary with the largest geographic variation resulting from labor costs. Limited tests using Medicare data provide support for the theory that geographic variation in the costs of providing DME is primarily caused by service components.

Assuming that most of the geographic variation in DME costs is attributable to service components, statistical tests were made to determine if Medicare fee schedule data would be highly correlated with geographic variations in various wage indices including those used for determining Medicare hospital and physician payments. The results were negative indicating that this readily available data is not useful for predicting variations in DME costs.

There are a number of alternatives available which HCFA can consider to determine variations in DME cost shares. The first is to convene an expert panel of individuals which would utilize a consensus or Delphi-type process, to attempt to obtain "average" cost share estimates for commonly furnished items of DME.

Using a market basket of DME items, a national survey of DME suppliers could be conducted to develop a geographic cost index. Such a survey which would be difficult, relatively costly, and require compliance by DME suppliers, may be the only way to currently develop a geographic payment index based on actual DME cost experience.

Another alternative would be to estimate variations in DME cost shares and develop a geographic payment index using proxy data currently available without having to rely on data that otherwise would have to be acquired from DME suppliers. One example of such a conceptual approach is based on accounting identities to provide an index of the ratios of service costs to total costs by geographic area. If tests of the methodology were to be successful, it would provide comparisons of index levels for different geographic areas and have potential use for more fully addressing the data requirements in the Congressional mandate. However, it should be noted that a geographic payment index constructed using proxy data and a complex methodology might not be well-accepted by the DME industry.

In summary, the construction of a geographic payment index for durable medical equipment will present a very difficult challenge to HCFA because of 1) the inability of DME suppliers to readily provide the kinds of item specific cost data normally used by HCFA in developing geographic payment indices, 2) the lack of data and standardization on cost shares by product type, and 3) the likely objections that would be raised by any methodology that estimates cost shares and geographic variation using proxy data.

ACKNOWLEDGEMENTS

This project was conducted under the direction of George "Jerry" Kowalczyk, Director, Health Research and Data Management, Jing Xing Health and Safety Resources, Inc. There are several members of the Jing Xing project team who contributed to the study.

James Beebe prepared the report on correlations between payment indices (Appendix D) and the report on surveying DME suppliers (Appendix E). Charles Fisher developed the alternative approach using proxy data that is described in section 5 of the Discussion Chapter. Bernard Patashnik provided valuable consultative services in several study areas. Kay Jurinski was responsible for the literature search. Martin Morley and Jing Chiu made valuable contributions in several areas especially in contacting members of the Federal Advisory Panel and DME industry representatives, arranging meetings and presentations, and in general project support.

The project team would like to express its appreciation for the cooperation and assistance on the part of several other participants. Special thanks to members of the Federal Advisory Panel and several representatives of the DME industry who participated in meetings and provided valuable inputs to the project. The advice and assistance of Stephen Azia and Cara Bachenheimer of the Health Industry Distributors Association and Michael DeCarlo of the National Association of Medical Equipment Services is especially noteworthy.

The contributions and advice from the HCFA Project Officer William Sobaski and Joseph Cramer of the Office of Research were substantial. Chester Robinson, William Long, Sherry Terrell, Sam McNeill, Vic McVicker, and Cheryl Black of HCFA also provided valuable support and cooperation to the effort.

APPENDIX A

REPORT ON FEDERAL ADVISORS MEETING

Jing Xing
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MINUTES FROM FEDERAL ADVISORY GROUP MEETING

Durable Medical Equipment Supplier Product and Service Cost Study
HCFA Contract No. 500-95-0044
December 8, 1995

1. Background

One of the major tasks of this contract requires the convening of a Federal Advisory Group to provide advice to HCFA on its DME study. The meeting was originally scheduled for November 17, 1995 but the Federal furlough necessitated a rescheduling on December 8, 1995.

Included at the end of this report are:

* An attendance list.
* A meeting announcement and agenda.

2. Participants Area of Expertise

Tom Dowdal and Roger Hultgren (GAO) - Responsible for several GAO studies and reports to Congress on DME suppliers costs and Medicare payments.

Arlyce Dubbin and David Crabtree (VA) - Arlyce directs the analysis of VA purchases of DME and other products primarily for inpatient care. She is responsible for the VA Procurement History File which provides line item details of all VA purchases. David has similar responsibilities for the home health side of DME and other VA procurements.

Steve Lillie (DOD) - Senior Health Policy Analyst responsible for evaluating the purchase and rental of various types of medical equipment from several carriers for the purpose of making DOD acquisition determinations.

Mike Smith (GSA) - Responsible for contracts with manufacturers (not distributors) of medical products and drugs. Develops and maintains GSA price schedules.

Eileen Bechkes and Richard Lyons (OIG,HCFA) - Responsible for health care financing audits and studies which compare HCFA payments for units of DME items with those of other payers.

3. Background, Study Approach and Issues

After introductions, Bill Sobaski and Jerry Kowalczyk described the background, requirements and status of the study. The congressional mandate, technical tasks and objectives, and time frames of the study were detailed.

The following issues/decisions from the DME Project Kickoff meeting with HCFA were also described:

* The difficulties, and the need to be flexible, in defining service cost shares. The potential use of shares of cost, rather than levels, represented by product and service components.

* Using separate categories for purchases and rentals of a few representative types of equipment. Include only DME equipment; not orthotics, prosthetics and supplies.

* Consensus of opinion that product costs probably do not vary much by geographic location and that most geographic variation in costs result from service components.

4. Data Availability

GAO

Roger Hultgren and Tom Dowdal provided copies of two GAO reports which might have value to the study. The most relevant report entitled "Effect of Durable Medical Equipment Fee Schedules on Six Suppliers' Profits", November 1991, evaluated suppliers revenues/profits and major components of suppliers' costs. The second report is "Medicare, Program and Beneficiary Costs Under Durable Medical Equipment Fee Schedules."

Tom Dowdal also mentioned a 1972 GAO report, but when later queried about obtaining a copy, he advised us that this report would not be of any value to our study since the more recent GAO reports contain better information.

VA

David Crabtree provided a copy of the VA report "National Home Oxygen Program,

FY 94 Cost Review" which contains costs for three oxygen systems as reported by facilities. Data are shown by the cities in which the facilities are located. Arlyce Dubbin provided a general description of the VA Procurement History File which contains line item detail of all VA purchases. They stated that they could be contacted directly for further information on VA data bases.

DOD

Steve Lillie reported that there was not any data available from DOD that would provide us with relevant information on the service and product component costs of DME or other medical purchases.

GSA

Mike Smith reported that the GSA schedules for medical equipment purchases contain pricing information from manufacturers and that GSA does not have any related cost data for use in this study. He stated that there are very few DME items (related to this study) that are purchased by GSA.

OIG/HCFA

Richard Lyons briefly described two OIG reports which may be of interest. The first contains results of a survey of Medicare beneficiaries and suppliers regarding oxygen utilization and the second is a report on the use of hospital beds. He stated that he would provide Bill Sobaski copies of the reports and that he would also inquire as to DME assessment activities currently
being conducted by OIG and inform Bill of his findings.

Summary

Although the Federal Agencies represented on the advisory group have some related data which may of value, they do not have the comprehensive data required to thoroughly conduct the mandated study on product/service cost shares of DME items. It was noted that IRS may have some data which have possible applications in the study.

In regard to cost accounting records maintained by suppliers and their potential use for this study, Tom Dowdal stated that such records are not maintained by DME product.

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FEDERAL ADVISORY GROUP MEETING

December 8, 1995
Attendance

Office of Research and Demonstrations, HCFA

Bill Sobaski

Joe Cramer

Jing Xing Health and Safety Resources, Inc.

George (Jerry) Kowalczyk

Martin Morley

Charles Fisher

Kay Jurinski

Other HCFA and Federal Agencies

See attached list.

Organization:	General Accounting Office
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Organization:	Health Care Financing Administration
Contact Person:	**Bill Long**
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Organization:	Health Care Financing Administration Division of Payment System, ORD,
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Organization:	AHCPR Center for Cost and Financing
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Organization:	Jing Xing Health and Safety Resources, Inc.
Contact Person:	**Bernard Patashnik**
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DME STUDY
FEDERAL ADVISORY GROUP MEETING

Date, Time and Place

November 17, 1995 @ 10:00 a.m.
Health Care Financing Administration
7500 Security Boulevard
Baltimore, MD 21244-1850
Conference Room 111 - First Floor Central
Conference Room Telephone # (410) 786-3824

Purpose

To provide advice to HCFA on Section 135(c) of P.L. 103-432, the Social Security Act Amendments of 1994, which requires 1) a study of DME supplier product costs and service costs and 2) a report to Congress on study findings.

Tentative Agenda

1. Background
   - Congressional mandate
   - Need for cost data
2. Study Approach
   - Technical tasks and objectives
   - Time frame
3. Issues
   - Defining cost shares
   - Geographic variations
   - Categories of DME
4. Data Availability
   - Federal agency sources
   - Industry sources
   - Literature search
5. Meeting of DME Industry Representatives
   - Schedule
   - Recommendations

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November 8, 1995

Thomas G. Dowdal,
Assistant Director
General Accounting Office
NGB-Suite 500,
441 G Street, N.W.
Washington, D.C., 20548

Ref: Federal Advisory Group Meeting, November 17, 1995.

Dear Mr. Dowdal,

Thank you for taking the time to discuss and participate in the Federal Advisory Group meeting requested by the Health Care Financing Administration (HCFA) to address issues pertaining to a study of variations in Durable Medical Equipment supplier costs.

As I indicated during our conversation, my organization is providing contract support services to the HCFA for the meeting and in its other study endeavors to gather and analyze pertinent information for a report to the Congress. Accordingly, this correspondence is to provide you with the accompanying two documents concerning the meeting referenced above: 1) an announcement from Mr. William Sobaski, who has purview over the study for HCFA, and 2) a tentative meeting agenda.

Sincerely,

Martin J. Morley
Vice President /
Project Facilitation Coordinator

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

6325 Security Boulevard
Baltimore, MD 21207

Meeting on Study of Variations in Durable Medical Equipment Supplier Product and Service Costs

With the assistance of Jing Xing Health and Safety Resources Inc., we are having a meeting on Friday, November 17, at 10 AM in Conference Room C111 on the first floor of the HCFA Headquarters building at 7500 Security Boulevard, to discuss how we might conduct this study.

Congress, in the 1994 amendments to the Social Security Act, asked HCFA to study and determine:

a) the share of DME supplier costs that are product-related, and the share that is service-related ;

b) whether these shares vary by product category;

c) whether these shares have geographic variation.

At the November 17 meeting, representatives of Federal agencies having knowledge of DME price and cost matters are being asked to share their knowledge with us and to help us define an approach for our study.

The next step in the project is to be a meeting with representatives of the durable medical equipment supplier industry to invite them to volunteer data for the study. The November 17 meeting will greatly assist us in defining this data.

We hope you can attend and meet with us on the 17th. If you would like to participate, but cannot attend in person, please call me (410 786 6588) or Joe Cramer (410 786 6676), and we will arrange a telephone call-in set up for you.

William J. Sobaski
Acting Director, Division of Payment Systems
Office of Payment and Systems R&D, ORD

APPENDIX B

REPORT ON MEETING WITH DME INDUSTRY REPRESENTATIVES

Jing Xing
Health And Safety Resources, Inc.

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MINUTES FROM MEETING OF DME INDUSTRY REPRESENTATIVES

Durable Medical Equipment Supplier Product and Service Cost Study
HCFA Contract No. 500-95-0044
January 25, 1996

Background

One of the major tasks of this contract is conducting a meeting of DME industry representatives. The objectives are to inform the industry on the status of the study and to request any data or suggestions to enhance it. The meeting was held at HCFA headquarters on January 25, 1996. Attending were persons representing suppliers and trade organizations, several members of the Federal Advisory Group, HCFA staff and members of the Jing Xing team.

Included at the end of this report are:

1. An attendance list.
2. A list of communication information for participants.
3. Handouts provided to participants which included copies of the meeting announcement and agenda, the congressional mandate, major study tasks and the HCFA Administrator's letter to Congress.
4. A list of information items describing the meeting which had been previously provided to NAMES and HIDA officials for providing assistance in inviting participants.
5. A report submitted by NAMES on high service DME items for study consideration.

Proceedings

Congressional Mandate

After welcoming remarks and introductions by Bill Sobaski, he explained the Congressional mandate and HCFA's understanding of it. Tom Dowdal noted that Congress originally intended for the GAO Comptroller General to conduct a study of geographic variation in DME costs without HCFA involvement. However, at present, GAO is planning to only comment on the findings from this study.

Study Plans and Findings to Date

Jerry Kowalczyk described the major tasks and timeframes of the study. He followed with a description of findings to date on DME studies/data acquired from literature searches, HCFA sponsored research, other Federal agency initiatives and private sector reports. Bernie Patashnik described information contained in the recently acquired NARD-Lilly Digest for 1994.

Scope of Study - Recommendations of Federal Advisors

A number of recommendations from the Federal Advisory Group regarding the scope of the study were then described as follows:

1. The difficulties in defining service cost shares - the study should focus on shares of cost components, not on absolute levels or profits.

2. Using separate categories for purchases and rentals of a few representative types of equipment. Include only DME equipment; not orthotics, prosthetics and supplies.

3. Consensus of opinion that product costs probably do not vary much by geographic location but that there are some variations in service costs (mainly labor and to a lesser extent in rents.)

4. The need to determine appropriate categories of DME items based on service cost proportions.

Discussion Items

Bill Sobaski led discussions on a number of technical issues and study assumptions. The following are highlights of the discussions:

* Bill Sobaski reiterated that the working assumption for the study was that we were interested in cost shares only rather than absolute dollar amounts. That is, with total costs equal to 100 percent, what are the percentage cost shares for the components of cost. The supplier industry representatives noted that they did not believe that supplier accounting records allow for determinations of the cost components for individual DME items. Tim Redman of the National Association of Retail Druggists stated that drug stores know the overall costs of doing business but not by product item.

* There was general consensus that the costs of acquiring a product (i.e., wholesale costs) are generally the same around the country with two possible exceptions. First, shipping costs for Alaska and Hawaii added

substantially to the acquisition costs. Second, volume purchasing could have a substantial impact on net acquisition costs but that is not a geographic difference per se.

* The meeting then focused on the service cost components of providing DME. In response to a request to identify a few DME items in "high, medium and low" service categories, NAMES produced a listing (copy attached at end of report) of their recommendations which was distributed to participants. It listed the kinds of products in various DME categories that involved substantial service. However, it was noted that we were probably more interested in 1) examples of services involving low, medium and high service rather than just high service items 2) including more high volume items in terms of Medicare utilization. Tim Redman stated that a representative market basket of DME items would be different for suppliers than one for drug stores which have a wide range of specialties. The industry representatives also noted that for products which do not have a service cost component per se, suppliers still incur costs such as storage, selling, delivery, etc.

* The industry participants were asked if data in the HIDA survey on suppliers reporting percents of revenue allocated to personnel expense, occupancy expense, etc. by region were generally representative of the entire industry. Tim Redman stated that the data did not accurately reflect the experience of drug stores. Carol Bentley of Roberts Home Medical Corporation felt that the firms responding to the survey were for the most part better run companies with better cost center data.

* Several participants noted that another factor which has major effects on the service costs of providing DME is the "type" of patient receiving the equipment and that the impacts vary considerably by type of product. This factor was illustrated in the NAMES handout which provided examples of three patients receiving oxygen therapy. Because of their different conditions, they each required different levels of service to provide the same type of equipment.

* Mike DeCarlo of NAMES stated that HCFA (after consultation with GAO and the industry) may have to tell Congress cost data by individual DME item cannot be supplied.

* No consensus emerged as to whether the analysis should focus on regional, state or some other geographic breakdown. However, although there was a general belief among the industry representatives that there were substantial cost differences between urban and rural areas, they were unsure of the direction of the differences. Several tradeoffs were discussed

such as potentially lower wage and rent costs, but higher service and delivery costs, in rural areas. No conclusions were reached except for noting that DME costs are generally known to be high in certain areas (e.g., Northeast, southern California) and low in some others (e.g., Alabama). Bill Sobaski noted the historical,
budget neutral aspects of government geographic indexes.

* Considerable discussion centered on the impact of state regulations on DME costs. It was noted that there is a wide diversity in regulations by state and that some impose substantial regulatory requirements for certain services (e.g., two drivers in New York for respiratory care items) which should be taken into account in analyzing geographic variations. Cheryl Brown of the American Association for Respiratory Care indicated that she would provide information for the study on state regulations which affect their members. There was no other known source of comparative information on state regulations(Mike DeCarlo of NAMES stated he would attempt to determine if such a compilation exists), so it is not known whether regulatory compliance causes significant cost differences between states. Several participants noted that practice standards set by national professional associations and/or insurance companies could require DME suppliers to conduct their business in a manner which would put them in compliance with the regulations anyway. Quality of service and legal liability perspectives are major concerns of reputable suppliers. Thus, although complying with regulations does increase costs, it is not known whether it results in significant geographic differences in costs. Steve Azia of HIDA recommended that 1)HCFA develop supplier standards and requirements that are consistent throughout the country on the recommended use of services for DME items 2)that the need for such tighter standards be referenced in our report to Congress.

* There was general agreement that the largest geographic variation is in labor costs. Participants were provided a copy of the Medicare 1996 GPCI Employee Wage Index by State which is used for the Physician Fee Schedule. Terri Maggio of the Jersey Association of Medical Equipment Suppliers stated that DME items should not be included in any physician geographic index for Medicare reimbursements.

* In requesting the industry to supply any relevant data, discussions became focused on the diversity of the industry. There are about 150 thousand suppliers of DME from large suppliers, to drug stores and doctors offices. It was stated that there are about 45 thousand establishments/locations which represent "real" DME suppliers. The two largest companies have about one quarter of the total industry business. There was some discussion regarding looking at some national chain such as APRIA which might have a national

cost structure. Kimberlie Bowers responded that even though APRIA has over 400 locations, they do not have total uniformity in their accounting cost structure, due in part to a recent corporate merger.

* Bill Sobaski described other data sources which are being evaluated such as Medicare DME program data, SADMERC data and the potential use of proxy data if DME specific data were not available.

Follow-up Activities

Bill Sobaski requested that any industry data be provided to Jing Xing by March 1, 1996 since the study must be completed by the end of May 1966. Jing Xing will also be available to assist any supplier/organization with data development in a confidential manner. Any data provided will be treated as proprietary and will not be released in an identifiable manner to others. Also, any further suggestions on any of the study issues were welcomed. There will also be some follow-up contacts with many of the participants.

Addendum to Meeting Report - Follow-up Activities

The time period for follow-up activities regarding data acquisition and information gathering was extended until mid-May 1996. The activities consisted of meetings, telephone contacts, and written communications with the DME industry including representatives of trade organizations and suppliers. This effort yielded some updated publication data, a compilation of state laws and regulations regarding DME, clinical practice guidelines for respiratory care, and other types of summary data. However, the extended effort did not generate the required data on levels of variation in cost shares by type of DME item or by geographic location.

7008-K Little River Turnpike - Annandale, VA. 22003 / Telephone (703) 941-0784

Meeting With Industry Representatives
On Study of Variations In Durable Medical Equipment Supplier Product And Service Costs

Primary Listing Of Participants — *January 25, 1996 (Updated per actual attendance)*

IN ATTENDANCE	PARTICIPANT		ORGANIZATION
☑	Azia,	Stephen M.	Health Industry Distributors Association (H.I.D.A)
☑	Beebe,	James C.	Jing Xing Health and Safety Resources, Inc.
☑	Bentley,	Cynthia	Roberts Home Medical Corp.
☑	Bowers,	Kimberlie R.	APRIA Health Care, Inc.
☑	Brown,	Cheryl	American Association for Respiratory Care
☑	Byrnes,	Mary	DHHS. Office of the Ass't Secrettary Planning & Eval.
☑	Chiu,	Jing	Jing Xing Health and Safety Resources, Inc.
☑	Crabtree,	David	Department of Veterans Affairs
☑	Cramer,	Joe	Health Care Financing Administration
☐	Czarnecki,	Mark	Home Care USA
☑	Decarlo,	Michael J.	Nat'l Assoc. for Medical Equip. Services (N.A.M.E.S)
☑	Dowdal,	Thomas G.	General Accounting Office
☑	Frazier,	Karen	American Health Care Association
☑	Garrison,	Carla	Jersey Association of Medical Equipment Suppliers
☑	Hultgren,	Roger	General Accounting Office
☑	Jurinski,	Katherine A.	Jing Xing Health and Safety Resources, Inc.
☑	Kowalczyk,	Jerry	Jing Xing Health and Safety Resources, Inc.
☑	Lillie,	Steven	Department of Defense
☑	Long,	Bill	Health Care Financing Administration
☑	Lyons,	Richard	Health Care Financing Administration
☑	Maggio,	Terri	Jersey Association of Medical Equipment Suppliers
☑	Morley,	Martin J.	Jing Xing Health and Safety Resources, Inc.
☑	Patashnik,	Bernard	Jing Xing Health and Safety Resources, Inc.
☑	Redmon,	Tim	National Association of Retail Druggists
☑	Richards,	Marcia	American Health Care Association
☐	Robinson,	Chester	Health Care Financing Administration
☑	Simon,	Karen	National Association of Support for Long Term Care
☑	Sobaski,	William J.	Health Care Financing Administration
☑	St. Pierre,	Mary	National Association for Health Care
☐	Zundel,	Charlotte	Medication Plus

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7008-K Little River Turnpike - Annandale, VA. 22003 / Telephone (703) 941-0784

January 25, 1996

Health Care Financing Administration
7500 Security Boulevard
Baltimore, Maryland 21244 - 1850

Meeting With Industry Representatives On Study of Variations In Durable Medical Equipment Supplier Product And Service Costs

AGENDA

1. Welcome and introductions
2. Congressional mandate
3. Study plan
4. Federal Advisory Group meeting
5. Discussion items
6. Follow-up activities

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

6325 Security Boulevard
Baltimore, MD 21207

January 25, 1996

Meeting With Industry Representatives
On Study of Variations
In Durable Medical Equipment Supplier Product And Service Costs

Congressional Mandate For Study
[P.L. 103.432]

SEC. 135: MISCELLANEOUS AND TECHNICAL CORRECTIONS

(c) STUDY OF VARIATIONS IN DURABLE MEDICAL EQUIPMENT SUPPLIER COSTS. --

(1) COLLECTION AND ANALYSIS OF SUPPLIER COST DATA. --- The Administrator of the Health Care Financing Administration shall, in consultation with appropriate organizations, collect data on supplier costs of durable medical equipment for which payment may be made under part B of the medicare program, and shall analyze such data to determine the proportions of such costs attributable to the service and product components of furnishing such equipment and the extent to which such proportions vary by type of equipment and by the geographic region in which the supplier is located.

(2) DEVELOPMENT OF GEOGRAPHIC ADJUSTMENT INDEX; REPORTS. --- Not later than July 1, 1995--

(A) the Administrator shall submit a report to the Committees on Energy and Commerce and Ways and Means of the House of Representatives and the Committee on Finance of the Senate on the data collected and the analysis conducted under paragraph (1), and shall include in such report the Administrator's recommendations for a geographic cost adjustment index for suppliers of durable medical equipment under the medicare program and an analysis of the impact of such proposed index on payments under the medicare program; and

(B) the Comptroller General shall submit a report to the Committees on Energy and Commerce and Ways and Means of the House of Representatives and the Committee on Finance of the Senate analyzing on a grographic basis the supplier costs of durable medical equipment under the medicare program.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

The Administrator
Washington, D.C. 20201

The Honorable Bill Archer
Chairman, Committee on Ways and Means
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This interim report concerns the study of variations in durable medical equipment supplier costs which is mandated in Section 135(c)(1) of Public Law 103-432, the Social Security Act Amendments of 1994, and the report on development of geographic adjustment index mandated in Section 135(c)(2).

We have initiated a contract procurement to gather data that are needed to respond to Section 135(c)(1). Currently available data do not allow the estimation of the portions of durable medical equipment supplier costs attributable to the cost of the products, and the portions attributable to services, or for the estimation of any differences among equipment categories or among geographic regions. Hence, we were unable to provide the report requested on a geographic practice cost adjustment by July 1, 1995.

The contractor will assist HCFA's efforts to meet with representatives of the durable medical equipment supplier industry and their organizations, and to invite and obtain data from them for this study. We anticipate that the contract will be awarded by September 30, 1995, and completed by May 31, 1996. We will provide you with a report of the study results and our recommendations concerning a geographic adjustment index for durable medical equipment suppliers within 90 days following receipt of the contractor's findings.

Sincerely,

Bruce C. Vladeck
Administrator

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

6325 Security Boulevard
Baltimore, MD 21207

January 25, 1996

Meeting With Industry Representatives
On Study of Variations
In Durable Medical Equipment Supplier Product And Service Costs

Major Tasks For Study

Task 1.

Establish a federal government advisor's panel involving the appropriate federal agencies to advise HCFA on this study.

Task 2.

Conduct a meeting with representatives of the durable medical equipment segments of the U.S. personnel health care system to identify data needed for the study and to discuss alternatives for obtaining any data needed on the product and service costs of the DME suppliers used by Medicare beneficiaries.

Task 3.

Acquire and analyze data gathered on the product and service costs of DME suppliers in order to :

a) estimate the product and service cost shares for DME suppliers,

b) determine whether and how such cost shares may vary by category of DME, and

c) determine whether and how DME product and service costs exhibit geographic variation.

Task 4.

Conduct a review of the literature concerning the product and service costs of DME suppliers and prepare a report summarizing up to six (6) major studies and their findings.

Task 5.

Prepare materials for a report that can provide Congress the results of the analyses of DME supplier product and service costs described in Task 3 above.

Task 6.

Submit a Final Report summarizing the tasks performed under the study, the data and methods used, and the results of the analyses.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

6325 Security Boulevard
Baltimore, MD 21207

Meeting Of Industry Representatives
On Study of Variations In Durable Medical Equipment Supplier Product And Service Costs

On Thursday, January 25, 1996 at 10 a.m., we are holding a meeting of representatives of the durable medical equipment supplier community regarding a study of variations in durable medical equipment supplier costs which was mandated by Congress in P.L. 103-432 (the 1994 Amendments to the Social Security Act).

Specifically, Section 135 (c) (1) of the legislation states "The Administrator of the Health Care Financing Administration shall, in consultation with appropriate organizations, collect data on supplier costs of durable medical equipment for which payment may be made under part B of the Medicare program, and shall analyze such data to determine the proportions of such costs attributable to the service and product components of furnishing such equipment and the extent to which such proportions vary by type of equipment and by geographic area."

Because it was determined that HCFA does not have appropriate data for determining the extent of variation in the cost proportions of interest to Congress, on September 21, 1995, the Administrator notified Congress that we were unable to provide the report requested on a geographic cost adjustment by July 1, 1995, but had initiated a contract to gather the data that are needed. The contractor, Jing Xing Health and Safety Resources, Inc., is assisting our efforts to meet with representatives of the durable medical equipment supplier industry and their organizations and to invite and obtain data from them for this study.

The purpose of this meeting is to inform you about the status of the study and to invite your suggestions and any data you may wish to contribute for the study. To date, we have identified a number of sources of data concerning durable medical equipment product component costs or proportions, but comparatively little concerning the service component costs or proportions. We are looking to you and your colleagues to inform us about the service component cost proportions for typical items covered by Medicare. We also wish to discuss and invite data on the extent to which the service component cost proportions vary by type of equipment and/or geographically.

This study will be limited to DME equipment other than orthotics, prosthetics or supplies. We intend to include both purchased items and rentals. We hope that you can aid us in categorizing items into high, medium and low service component groupings. We will also answer any questions you may have about this study.

We sincerely hope you will be able to participate in this meeting. Participation is open to all interested individuals and organizations, including any who have not previously expressed their interests to us. In preparing for this meeting, we have received very useful advice from staff of the National Association of Medical Equipment Suppliers and from the Health Industries Distributors Association for which we are very appreciative. Please feel free to relay this invitation to your colleagues.

For your information, the meeting room we have reserved is the Multi-purpose Media room adjacent to the HCFA Auditorium. It is on the first floor of the central building at 7500 Security Boulevard and will seat approximately 50 persons. There is visitor parking. A staff person will be available at the Security Guard desk to assist in your credentialling. It would be helpful if you notify me or Jing Xing by January 22 if you will be coming.

We also encourage all interested parties who may have data they want to provide us for this study to do so by March 1, 1996. Whenever requested, we (my Office and Jing Xing) will treat any data you provide as "proprietary" and will not release it in an identifiable manner to others except when required by statute. In the latter event, we will promptly notify you of any release.

I can be reached by telephone at (410) 786-6588. In the event I am unable to answer when you call, you may leave a voicemail message or call my associate for this study, Joseph M. Cramer, at (410) 786-6676. You may write to us at mail Stop C3-16-26 at the HCFA Central Office, 7500 Security Boulevard, Baltimore, MD. 21244-1850. You may also contact Jing Xing's Project Manager, George (Jerry) Kowalczyk, or his Project Coordinator, Martin J. Morley, at their office number in Annandale, Virginia (703) 941-0784.

Sincerely,

Bill Sobaski

William J. Sobaski, Acting Director
Division of Payment Systems
Office of Payment and Delivery Research and Demonstrations
Office of Research and Demonstrations

Jerry Kowalczyk
Jing Xing
Dec. 15, 1995

INFORMATION ITEMS
FOR CONVERSATION WITH NAMES & HIDA OFFICIALS
re
MEETING WITH REPRESENTATIVES OF DME INDUSTRY

PURPOSE - To verbally alert NAMES and HIDA officials of upcoming meeting with DME industry reps, to define requirements/objectives and to solicit their support where appropriate. Call is a follow up to previous meeting Bernie Patashnik and Jerry Kowalczyk held with these officials.

ITEMS -

1. Date - January 25, 1996
   Place - HCFA site

2. Jing Xing will help HCFA develop an invitation list - we want NAMES/HIDA suggestions on who should attend.

3. No Federal Register notice about the meeting - but it is open, i.e. not invitation only; not a formal survey; not trying to construct a geographic index at this time.

4. Attempting to determine the availability of, and to acquire cost data from, the DME industry in order to meet congressional mandate.

5. Study design/product areas

   Request NAMES/HIDA assistance in identifying prior to the meeting a few DME items in "high, medium and low" service categories for purchases and rentals separately.

   The project is limited to include only DME equipment; not prosthetics, orthotics or supplies.

   The project will focus on shares for components of cost as opposed to absolute levels of cost. HCFA needs service related cost information under the assumption that product costs do not vary substantially by geographic location except for purchase volumes or perhaps shipping costs. Not seeking disclosure of profit margins.

   Focus on limited number of geographic areas such as a) metropolitan, suburban, rural or b) perhaps 5 different urban and rural areas around the country.

6. DME industry reps may bring data to meeting, but there will also be a 30 day period following the meeting when data can be supplied. At the meeting we will a) explain mandate b) discuss above issues c) determine best approach and data availability and d) request industry to supply us with any relevant data.

7. If needed, the HCFA Project Officer will send NAMES and HIDA officials a formal letter describing above and requesting their cooperation, suggestions and support for conducting the industry meeting.

8. Does HIDA have any objections to using their data such as that in the Home Care Financial Performance Survey? Does NAMES feel that the HIDA data is broadly representative of NAMES members cost mix/geographic variation?

9. If possible, would NAMES/HIDA want their organizations to be on the meeting agenda?

NAMES
National Association for
Medical Equipment Services

January 5, 1996

NAMES RECOMMENDATION

Items for Inclusion in the HCFA Geographical Adjustment Factor Study

The following are a list of selected items, by Six-Point Plan category, that NAMES recommends be included for cost analysis in the HCFA study on service cost components to isolate geographic based variations. NAMES was asked by Xing Jing, the consulting firm conducting the study for HCFA, to identify a "basket" of five or six items per reimbursement category and to assist in identifying the service cost components for these items. (Xing Jing has made the assumption that product acquisition costs do not vary substantially on a geographic basis for HME services providers. The study will thus focus on "shares for components of cost as opposed to absolute levels of cost.")

Frequently Serviced Category

E0450 - Volume Ventilator; Stationary or Portable
E0453 - Therapeutic Ventilator
E0460 - Negative Pressure Ventilator
E0575 - Nebulizer; Ultrasonic
E0935 - Passive Motion Exercise Device

Capped Rental Category

E0193 - Powered Air Flotation Bed (Low Air Loss Therapy)
E0452 - Intermittent Assist Device with Continuous Positive Airway Pressure Device (CPAP)
E0781 - Ambulatory Infusion Pump
E1087 - High Strength Lightweight Wheelchair, Fixed Full Length Arms
E1213 - Motorized Wheelchair, Detachable Arms

Inexpensive/Routinely Purchased Category

E0237 - Water Circulating Heat/Cold Pad with Pump
E0652 - Pneumatic Compressor, Segmental Home Model With Calibrated Gradient Pressure
E0730 - TENS, Four Lead, Larger Area/Multiple Nerve Stimulation
E1375 - Nebulizer Portable with Small Compressor, with Limited Flow
K0028 - Fully Reclining Back (for Wheelchair)

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Oxygen

Identifying and analyzing provider costs with respect to the delivery of oxygen therapy equipment services should discriminate for the variation in the needs of the type of patient being served. The patient descriptions below are representative of the mix of patient conditions that oxygen therapy providers encounter. They are meant to represent an average patient at a given point on the spectrum of possible oxygen therapy patients. Yet each one of these examples represents a "real" person, drawn from the combined experience of oxygen therapy providers.

"Linda" Light Care

Linda represents the physical and medical conditions that minimally meet the Medicare criteria for oxygen therapy coverage, including the arterial blood gas (abg)/arterial oxygen saturation requirements of the Medicare law. Linda is a 68 year old woman with congestive heart failure and the early stages of emphysema. Linda also suffers from hypoxemia, an occasional shortness of breath when she ambulates. In order to slow the deterioration of her physical condition, Linda's physician has prescribed nighttime oxygen at a flow rate of one to two liters per minute. Her physician is also concerned that Linda not become sedentary in her home, which would accelerate her degenerative condition. Her doctor encourages her to remain active and has prescribed a minimal daily exercise routine. He has prescribed portable oxygen to encourage her to remain active. Additionally, Linda lives in a two story house and with a concentrator only would be confined to the upstairs by the appropriate length of tubing and needs the portable to remain active throughout the home.

"Mary" Medium Care

Mary is a 75 year old woman who has been on oxygen continuously for two to three years. Previously, Mary was a heavy smoker and now suffers from chronic obstructive pulmonary disease (COPD), emphysema, bronchitis, and asthma. Mary also has congestive heart failure and suffers chronic physical weakness. Mary's physician prescribed 2.5 liters of continuous oxygen after Mary's second episode with a ventilator and heart failure. Her physician is concerned that not engaging in a regular ambulatory routine would lead to a rapid degeneration of her condition and has therefore prescribed portable oxygen. To help her breath, Mary receives nebulizer treatments every four hours.

Mary suffers from disorientation and memory lapses requiring continuous monitoring by her oxygen provider. The provider makes frequent visits to assure her equipment is functioning properly and to replenish her portable oxygen supply. Mary is a frequent after-hours caller due to her memory lapses and disorientation. She finds it difficult to follow conservation protocols. The provider engages in repeated equipment education sessions.

"Harry" Heavy Care

Harry is a 70 year old man who has been on oxygen continuously for two to three years. Harry has lung cancer and emphysema, but his mental faculties are unimpaired. Harry is a smoker and still smokes up to two packs a day. Fiercely independent, Harry is unable to ambulate without oxygen. However, his daily activity would be severely limited without continuous use of high liter flow Oxygen. His physician has therefore prescribed continuous oxygen at four liters per minute. Harry has a psychological aversion to prolonged "confinement" to a stationary oxygen system, and continuously uses portable oxygen.

Harry lives in a rural area and is considered an isolated, homebound individual. He lives more than one hour response time from the nearest oxygen provider location. He resists or ignores standard usage protocols and his clinical plan of care requiring the provider to make repeated clinical visits. Harry regularly exceeds the prescribed oxygen usage by self-manipulation of the liter flow and/or portable refill requirements and does not clean or maintain the equipment or accessories. This accelerates the provider's delivery and maintenance schedule.

The following are recommended cost component centers within a typical oxygen therapy equipment services provider's operation that can be used for assigning actual cost values. As previously stated, actual costs will vary, given the patient being served.

COST CENTER COMPONENTS FOR THE DELIVERY OF OXYGEN THERAPY EQUIPMENT SERVICES

A. EQUIPMENT
- Concentrator
- Regulator (for compressed gas backup system)
- Demurrage (for compressed gas backup system)
- Liquid Reservoir (Contains liquid oxygen)[1]
- Other Equipment:
  - Nebulizer
  - Humidification equipment
  - Heater
  - Compressor
- Inventory of emergency replacement equipment

[1] Medicare stationary monthly payment amount includes payment for oxygen contents consumed by ambulatory patients.

COST CENTER COMPONENTS FOR THE DELIVERY OF OXYGEN THERAPY EQUIPMENT SERVICES

(continued)

B. EQUIPMENT PREPARATION
- Testing
- Cleaning
- Repair

C. DELIVERY AND SETUP
- In-home setup by therapist or technician
- Patient instruction at setup, and follow-up instruction
- Patient support materials and literature
- Patient safety assessment and orientation
- Around-the-clock equipment setup and service
- Around-the-clock delivery of liquid oxygen refills and/or gas cylinders to support patient ambulation
- Delivery Fleet:
  - Specialized vehicle outfitting to comply with Federal/State requirements (FDA, DOT, OSHA, and others)
  - Fleet maintenance
  - Driver technician training and compliance monitoring

D. REPAIR AND MAINTENANCE
- Routine scheduled maintenance:
  - Equipment diagnostics - oxygen purity measurement
  - Filter replacement
- Around-the-clock on-call maintenance and service
- Access to trained repair technicians

E. SUPPLIES AND ACCESSORIES
- Oxygen contents (liquid and/or compressed gas) for backup and/or portable equipment
- Replacement filters (gross particle, pre-felt, HEPA and in-line filters)
- Cannulas and tubing
- Other supplies and accessories as required by individual Plan of Care:
  - Standard masks
  - Venturi masks
  - Transtracheal catheters
  - Connectors
  - Water Traps
  - Conserving Device
  - Tracheostomy mask or collar
  - Special patient supply requirements

COST CENTER COMPONENTS FOR THE DELIVERY OF OXYGEN THERAPY EQUIPMENT SERVICES

(continued)

F. PATIENT CARE AND ASSESSMENT
- Patient assessment - clinical staff
- Plan of care development
- On-call customer service personnel

G. ADMINISTRATIVE CONSIDERATIONS
- Federal and State regulatory compliance - FDA, DOT, OSHA and state regulatory agencies (i.e. boards of pharmacy, boards of respiratory care, etcetera)
- Product liability
- Facility costs
- Documentation requirements:
  - Patient plan of care
  - Prescription documentation (HCFA form 484)
  - Assignment of benefits
  - Prescription recertification requirements
  - Order intake and processing
  - Billing documentation and procedures
- Investment in technology:
  - Patient monitoring systems
  - Patient delivery scheduling and routing
  - Electronic billing requirements
- Copayment and deductible collection risk

1mel13h

APPENDIX C

REPORT ON LITERATURE REVIEW

Jing Xing
Health And Safety Resources, Inc.

Scientific, technical, and managerial resources for effectively responding to detrimental conditions which impact on human physiological and environmental health.

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REPORT ON LITERATURE REVIEW

Durable Medical Equipment Supplier Product and Service Cost Study
HCFA Contract No. 500-95-0044
April 1996

Summary

Jing Xing conducted an extensive review of available literature in search of information on the product and service component costs of DME suppliers. This was a major project task in response to the Congressional mandate for HCFA to study and report on the product and service cost shares for the DME items which are covered under Part B of the Medicare program for home use. Congress is also interested in determining whether these cost shares vary by type of equipment and if they vary geographically.

The literature review was performed using the following:

1. Searches of online data base systems and healthcare lists.
2. HCFA sponsored studies.
3. Other Federal agency studies/sources.
4. Private sector studies/sources.

In summary, the literature review did not yield any reports or publications that provided direct answers to the specific questions raised in the Congressional mandate. It confirmed previous reports to Congress from the General Accounting Office which concluded that there is little uniformity among the cost accounting systems of DME suppliers that they studied and that the calculation of costs down to the level of specific products is not a customary industry practice.

However, there are a few reports and surveys which can provide useful insights such as expense proportions of revenue, revenue and income by size of firm and geographic variations by select expense categories. The sources of this data are described below as are all the sources of information reviewed.

Searches

Literature searches were made on the Medlars online data base system of the National Library of Medicine. The MEDLINE and Health Databases were searched. Over 100 DME references were reviewed. Extracted several articles such as "The Home Medical Equipment Industry's Expense Structure" from Caring, 11/91.

Reviewed the "Health and Medical Industry - Lists and Databases" compiled by BMI American Medical Information, Inc. Contacted staff in the firm regarding cost information on healthcare products.

Detailed information on these search sources, project notes, article synopses and copies of select articles were provided to HCFA under separate cover.

HCFA Sponsored Studies

Four extramural research studies funded by the Health Care Financing Administration were reviewed for relevance to this project. Vic McVicker (ORD) loaned copies of the first three studies listed below to Jing Xing for review:

1. RAND Corporation study "Analysis of Variation in Prevailing Charges for DME", 1990. Finding: Medicare prices do not vary significantly across market types(urban/rural) or by size but do vary by Census division.

2. Abt Associates study "Options for Medicare Reimbursement of DME", 1990. Reviewed the CPR methodology and found that suppliers costs of doing business with Medicare are higher than those for VA or Medicaid. Recommended that HCFA establish competitive bidding demonstrations and stated "There is ample evidence that competitive bidding encourages suppliers to bid prices closer to their true cost while Medicare's reimbursement methods offer no such incentives to suppliers."

3. CHER study "An Evaluation of Medicare Reimbursement Policies for DME", 1990. The study analyzed Medicare payments for 10 states.

4. Exotech research and demonstration project "An Experiment in Alternative Methods of Reimbursing for DME Acquired by Medicare Beneficiaries", 1980. Large data collection and analysis effort; compared purchases with rentals; experiments conducted in the state of Washington on alternative reimbursement procedures.

Select pages from these reports were provided to HCFA under separate cover.

Other Federal Agency Studies/Sources

Related studies from the following Federal agencies were reviewed and copies of the reports were provided to HCFA under separate cover.

General Accounting Office

1. "Effect of Durable Medical Equipment Fee Schedules on Six Supplier's Profits", 11/91. Finding: DME suppliers do not maintain records in a manner that permits direct computations of costs and profits by DME item. Used direct costs (what suppliers paid), indirect costs(delivery, set up), and overhead(space, utilities, marketing.)

2. "Program and Beneficiary Costs Under DME Fee Schedules", 7/92. Studies on the impact of DME fee schedules under Medicare.

3. "Durable Medical Equipment - Specific HCFA Criteria and Standard Forms Could Reduce Medicare Payments", 6/92. Recommended developing more detailed coverage criteria for paying or denying claims.

Department of Veteran Affairs

1. "National Home Oxygen Program, FY 1994 Cost Review", 5/95. Contains cost information on 164 facilities that have home oxygen programs, by region and city.

2. "National Prosthetics Analysis, FY 1994 Facility Report", 5/95. Contains comparative cost analysis data on 27 line items by geographic region and VA station. Line items include various types of hospital beds and wheelchairs.

Office of Inspector General

1. "Durable Medical Equipment - Review of Medicare Payments for Home Glucose Monitors", 3/92.

2. "Review of Medicare Part B Reimbursement of Hospital Beds", 5/93.

3. "Oxygen Concentrator Services", 11/94.

4. "Audit of Medicare Part B Payments for Seat Lift Chairs to Queen City Home Health Care", 7/89.

5. "Coverage of Enteral Nutrition Therapy: Medicare and Other Payers", 5/95.

6. "Marketing of Orthotic Body Jackets", 3/94.

As part of the literature search, we acquired a listing of all Office of Audit, Office of Inspector General working files and final reports. This listing was provided to HCFA under separate cover for general information purposes.

Contacts were made with staff in the Public Reference Room of the Securities and Exchange Commission to determine if there is any information relevant to the study from corporate filing information of DME suppliers. Relevant cost information is not available from this source.

Private Sector Data/Studies

Several surveys and studies conducted by the private sector were reviewed for relevancy. Copies of the following studies and descriptions of information sources were provided to HCFA under separate cover.

1. Health Industry Distributors Association annual survey reports "Home Care Financial Performance Survey" for 1995 and 1994. Provides insights on proportions of revenues that cover costs of goods sold and rented, personnel expenses, occupancy expenses, etc. Select data are shown by Medicare Census Regions in the 1994 report.

2. National Association for Medical Equipment Services "1993 Industry Survey, July 1993". Contains revenue and income data by size classifications of firms but not by geographical location; latest report since survey was discontinued after 1993.

3. National Association of Retail Druggists "1994 NARD-Lilly Digest, Survey of 1993 Operational Data". Contains data on drug store sales, cost shares, and rents by different levels of service and region. Has potential value for calculating correlations of drug store rents.

4. ECRI information on healthcare reimbursements for oxygen concentrators. Includes their product comparison charts which contain limited price data for this equipment.

5. A report prepared by the American Association for Respiratory Care (AARC) containing a compilation of current state laws and regulations regarding respiratory care and durable medical equipment.

6. Several clinical practice guidelines published by the AARC which pertain to respiratory therapy services that may be rendered in the home.

7. Marketing material from ABC Technologies, Inc. regarding their activity based accounting systems. Contact made with firm to determine if their system (cost accounting for individual products) was being used by any medical equipment suppliers - response was negative.

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National Association of Medical Equipment Services, Personal communication from Michael DeCarlo re Geographic Variations Study/ DME Supplier Product and Service Costs, (Alexandria, VA: February 1996).

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National Association of Retail Druggists, **1994 NARD-Lilly Digest: Survey of 1993 Operational Data**, (Alexandria, VA: 1994).

Office of Inspector General, **Coverage of Enteral Nutrition Therapy: Medicare and Other Payers**, OEI-03-94-00020 (Washington,DC: May 1995).

Office of Inspector General, **Oxygen Concentrator Services**, OEI-03-91-01710 (Washington,DC: November 1994).

Office of Inspector General, **Marketing of Orthotic Body Jackets**, OEI-04-92-01081 (Washington,DC: May 1995).

Office of Inspector General, **Review of Medicare Part B Reimbursement of Hospital Beds**, A-06-91-00080 (Washington, DC: May 1993).

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APPENDIX D

REPORT ON CORRELATION BETWEEN THE 1989 BASE FEE SCHEDULE INDEX FOR DURABLE MEDICAL EQUIPMENT AND VARIOUS OTHER COST AND EXPENSE INDICES

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Correlation Between the 1989 Base Fee Schedule Index for Durable Medical Equipment and Various Other Cost and Expense Indices

Durable Medical Equipment Supplier Product and Service Cost Study
HCFA Contract No. 500-95-0044
April 1996

Introduction

Public Law 103-432 requires the Health Care Financing Administration to determine the extent to which the proportion of durable medical equipment (DME) costs attributable to service and product components vary by type of equipment and geographic area. Consultation with industry representatives and federal advisors indicated that it would probably be impossible to acquire the product and service components of cost by type of equipment. However, the representatives also felt that for the most part product costs would not vary geographically so that any geographic variation in costs could be attributable to service costs.

As indicated in other sections of this report, measuring geographic variations in costs, say on a state-by-state basis, could be both difficult and expensive. However, if most of the variation is attributable to service costs, then it may be that geographic variation in DME costs would be correlated with geographic variations in other service-type costs, such as wages in related occupations. Thus, it was decided see if any available data related to DME costs were correlated with extant data from a variety of other sources. This section of the report describes these efforts.

DME Cost Index

There are no known sources of data on the variations of DME costs to suppliers. However, HCFA had available the 1989 base fee schedule amounts used for Medicare payments. These are the amounts on which the current fee schedule is based before various floor and ceiling caps were imposed. It was decided that this would be the best available proxy for cost data.

We used fee schedule data for 27 DME codes to develop a state-by-state DME index. Thirteen codes were selected because they were large volume DME items used by 100,000 persons or more in 1993. The remaining 14 codes were

recommended for study of service cost components by the National Association for Medical Equipment Services (see Exhibit 1). HCFA's Bureau of Policy Development provided the base schedule amounts. Table 1 shows the codes and their description. Table 2 shows some 1993 national statistics for the codes.

Developing the base fee schedule index involved three steps.

1. For each state, calculate the weighted average fee schedule amount across the 27 DME items. Weights are the number of Medicare services provided in 1993.

2. Calculate a weighted U. S. fee schedule amount across the contiguous 48 states plus Washington D.C. Again, weights were the number of Medicare services.

3. Calculate an index for each state by dividing the state fee schedule amount by the U. S. fee schedule amount.

We also calculated indices using allowed charges as weights. However, as will be seen later, these indices proved less satisfactory than the service weighted indices.

GPCI Wage and Practice Expense Indices

HCFA provided the GPCI wage and practice expense indices which are currently used for the physician fee schedule. These two indices as well as the DME index are shown in Table 3. Graph 1 shows a plot of the DME index versus the practice expense GPCI along with a fitted regression line, 95 percent prediction intervals, and related statistics. The correlation is .58, which is not considered to be very high. If the GPCI were used to predict the DME index, a GPCI of 1.0 would yield a 95 percent confidence interval of from about .85 to 1.17 for the predicted DME index.

Graph 2 shows a plot of the allowed charge weighted DME index versus the practice expense GPCI. The correlation coefficient is only .16 and this is clearly not as good a fit as the previous graph.

Graphs 3 and 4 show plots and statistics similar to Graphs 1 and 2 for the DME index verses the wage GPCI . One reaches the same conclusion with regard to the weighting method. However, the practice expense of Graph 1 shows a slightly stronger relationship with the DME index than the wage GPCI. Thus, the next three graphs, which look at subgroups of DME items, use only the service weighted DME index and the practice expense GPCI.

reasonble to suppose that charge and cost variations would be quite highly correlated, we have no empirical proof of this. Second, we have limited the analysis to only 27 out of hundreds of DME items that might have been chosen. Third, the data with which we correlated the DME index was necessarily limited to data readily available. A more thorough study of the service occupations in the DME industry, might have led to better choices. Any of these three reasons may have contributed to the poor correlation results.

Graph 5 shows information for three codes covering inexpensive DME items. There is practically no correlation with the practice expense GPCI. Graphs 6 and 7 show information for capped rental DME codes (correlation = .53) and oxygen DME codes (correlation = .50) respectively. Again we find poor to very poor prediction power.

In summary, it appears that the GPCI would not make a very good geographic index to adjust for variations in DME costs to the extent that costs are reflected in the fee schedule.

Other Indices

Graph 8 shows a plot of the DME index versus a HCFA hospital wage index based on Medicare cost reports. The hospital wage is similar to, but not exactly the same as, the official index used in hospital reimbursement regulations. It is based on wages and fringes, weighted by hours worked, using data from the Minimum Data Set of the cost report file. With a correlation of .55, this shows the second strongest relationship although it is still not strong enough to provide a satisfactory predictor.

The remaining graphs are based on 1990 U. S. Census salary data. It was speculated that the DME service occupations would be primarily low-paying, and, thus, possibly correlated with groups of low salary occupations. The data come from a Census Bureau data base created for Health Economics Research, Inc. for the purpose developing a geographic practice cost index for HCFA. The five occupational groups studied are as follows:

1. Service occupations
2. Health aides, except nursing
3. Nursing aides, orderlies, and attendants
4. Cleaning and building occupations
5. Operators, fabricators, and laborers

Salary indices were developed for these five groups of occupations and correlated with the DME index. The results are shown in Graphs 9 through 13. Again, the relationships are all very weak. The highest correlation was .33 for service occupations.

Summary

Clearly, we have not found any readily available data that does an adequate job of predicting variations in DME costs as defined in this analysis. However, there are several limitations to the analysis. First, we have used state-to-state 1989 reasonable charges as proxy for variations in DME service costs. Although it seems

Table 1: DME HCPC Codes Studied

Code	Description
E0105	CANE, 3-PRONG
E0135	WALKER, FOLDING
✓E0163	COMMODE CHAIR, STAT
✓E0237	WATER HEAT PAD
E0652	PNEUMATIC COMPRESSOR
E0730	TENS, 4 LEAD
E1375	NEBULIZER PORTABLE
E0450	VOLUME VENTILATOR
E0453	THERAPEUTIC VENTILATOR
E0460	NEG PRESSURE VENTILATOR
E0575	NEBULIZER, ULTRASONIC
E0935	PASSIVE MOTION EXERCISER
E0193	AIR FLOTATION BED
E0255	HOSP BED, VAR HEIGHT
E0260	HOSP BED, SEMI ELECTRIC
E0265	HOSP BED, TOT ELEC
E0452	INT ASSIST DEVICE
E0570	NEBULIZER, COMPRESSOR
E0781	AMBULATORY INFUSSION PUM
E1087	HIGH STRENGTH WHEEL CHAIR
E1130	STD WHEELCHAIR
✓E1150	WHEELCHAIR
E1213	MOTORIZED WHEELCHAIR
E0431	PORT GAS OX SYS
E1400	OX CONCENTRATOR, 2 LITERS
E1401	OX CONCENTRATOR, 3 LITERS
E1403	OX CONCENTRATOR, 5 LITERS

Exhibit 1

NAMES
National Association for
Medical Equipment Services

January 5, 1996

NAMES RECOMMENDATION

Items for Inclusion in the HCFA Geographical Adjustment Factor Study

The following are a list of selected items, by Six-Point Plan category, that NAMES recommends be included for cost analysis in the HCFA study on service cost components to isolate geographic based variations. NAMES was asked by Xing Jing, the consulting firm conducting the study for HCFA, to identify a "basket" of five or six items per reimbursement category and to assist in identifying the service cost components for these items. (Xing Jing has made the assumption that product acquisition costs do not vary substantially on a geographic basis for HME services providers. The study will thus focus on "shares for components of cost as opposed to absolute levels of cost.")

Frequently Serviced Category

E0450 - Volume Ventilator; Stationary or Portable
E0453 - Therapeutic Ventilator
E0460 - Negative Pressure Ventilator
E0575 - Nebulizer; Ultrasonic
E0935 - Passive Motion Exercise Device

Capped Rental Category

E0193 - Powered Air Flotation Bed (Low Air Loss Therapy)
E0452 - Intermittent Assist Device with Continuous Positive Airway Pressure Device (CPAP)
E0781 - Ambulatory Infusion Pump
E1087 - High Strength Lightweight Wheelchair, Fixed Full Length Arms
E1213 - Motorized Wheelchair, Detachable Arms

Inexpensive/Routinely Purchased Category

E0237 - Water Circulating Heat/Cold Pad with Pump
E0652 - Pneumatic Compressor, Segmental Home Model With Calibrated Gradient Pressure
E0730 - TENS, Four Lead, Larger Area/Multiple Nerve Stimulation
E1375 - Nebulizer Portable with Small Compressor, with Limited Flow
K0028 - Fully Reclining Back (for Wheelchair)

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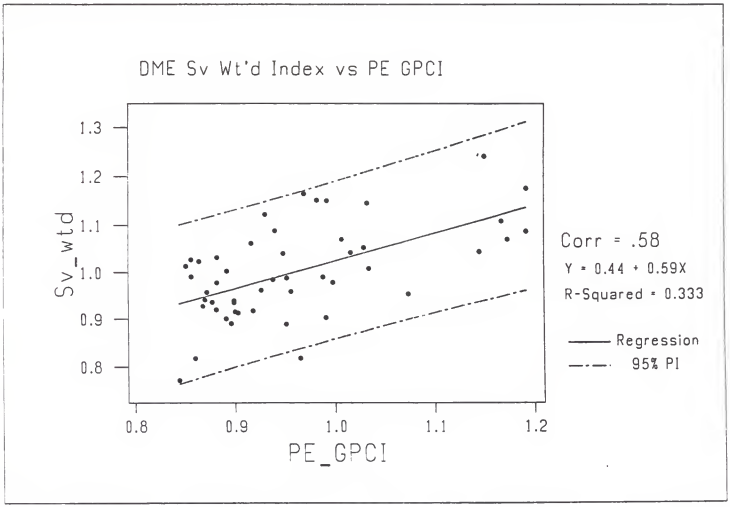
Table 2: Some Statistics for Selected DME Codes

Code	Persons	Services	Allw'd Chg per Person	Allw'd Chg per Service	Mean Base Fee
E0105	115420	119900	40	39	38
E0135	283520	323620	65	57	64
E0163	299740	353220	87	74	84
E0237	1360	3200	222	94	382
E0652	14160	20600	3922	1696	3931
E0730	17000	27960	292	178	621
E1375	1780	11200	244	39	229
E0450	2860	25440	7187	807	749
E0453	1540	10160	3028	459	453
E0460	200	2040	5794	568	538
E0575	12940	90980	610	87	79
E0935	15960	26020	405	248	26
E0193	3860	12540	2556	787	958
E0255	126500	493600	391	100	91
E0260	181080	700920	455	115	129
E0265	130820	513080	533	136	151
E0452	3000	17080	1383	243	189
E0570	321000	22351760	360	49	23
E0781	14800	96060	502	77	264
E1087	2580	11400	383	87	101
E1130	204980	841440	145	35	36
E1150	109840	460140	251	60	64
E1213	2640	6040	2447	1070	328
E0431	253980	1681220	301	45	261
E1400	137920	873500	1797	284	191
E1401	112700	763440	1805	274	27
E1403	114120	703320	1753	284	42

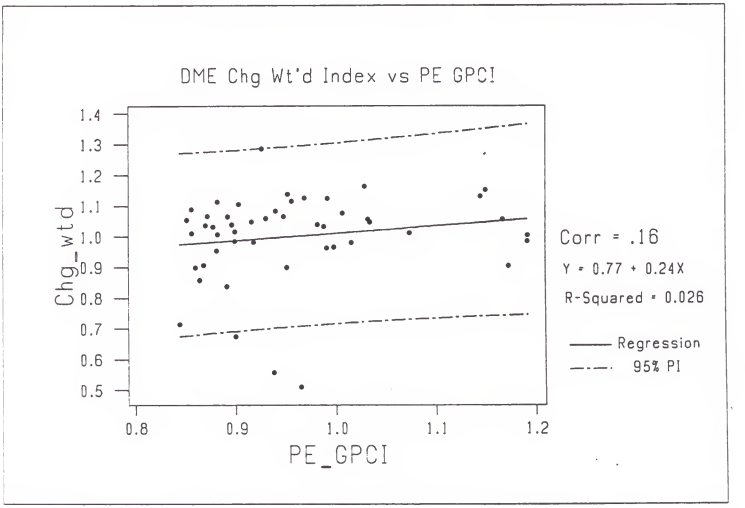
Table 3: Medicare 1996 GPCI Employee Wage Index and Practice Expense Index Used for Physician Fee Schedule

State	Wage Index	Practice Expense Index	DME Index	State	Wage Index	Practice Expense Index	DME Index
AL	0.905	0.870	0.941	NE	0.873	0.872	0.957
AZ	0.934	0.956	0.959	NV	1.055	1.029	1.052
AR	0.857	0.856	1.027	NH	0.908	1.034	1.008
CA	1.123	1.145	1.044	NJ	1.062	1.173	1.069
CO	0.982	0.951	0.889	NM	0.903	0.903	0.913
CT	1.028	1.192	1.176	NY	1.127	1.167	1.108
DE	1.009	1.032	1.146	NC	0.891	0.918	0.918
DC	1.165	1.192	1.087	ND	0.887	0.860	0.817
FL	0.914	0.991	0.903	OH	1.007	0.940	1.088
GA	0.923	0.948	1.040	OK	0.914	0.882	0.978
ID	0.907	0.882	1.032	OR	1.013	0.952	0.988
IL	1.075	1.007	1.070	PA	1.007	0.982	1.152
IN	0.970	0.916	1.061	RI	0.955	1.074	0.954
IA	0.916	0.877	0.936	SC	0.875	0.899	0.940
KS	0.915	0.892	1.003	SD	0.832	0.856	0.991
KY	0.925	0.868	0.928	TN	0.896	0.899	0.935
LA	0.955	0.896	0.890	TX	0.950	0.930	1.122
ME	0.871	0.969	1.165	UT	0.935	0.891	0.900
MD	1.062	1.016	1.042	VT	0.872	0.988	0.990
MA	1.015	1.150	1.241	VA	0.928	0.938	0.985
MI	1.126	0.992	1.151	WA	1.051	0.998	0.979
MN	0.969	0.965	0.818	WV	0.922	0.851	1.013
MS	0.872	0.844	0.772	WI	0.989	0.926	0.962
MO	0.948	0.900	0.916	WY	0.956	0.881	0.920
MT	0.918	0.864	1.023				

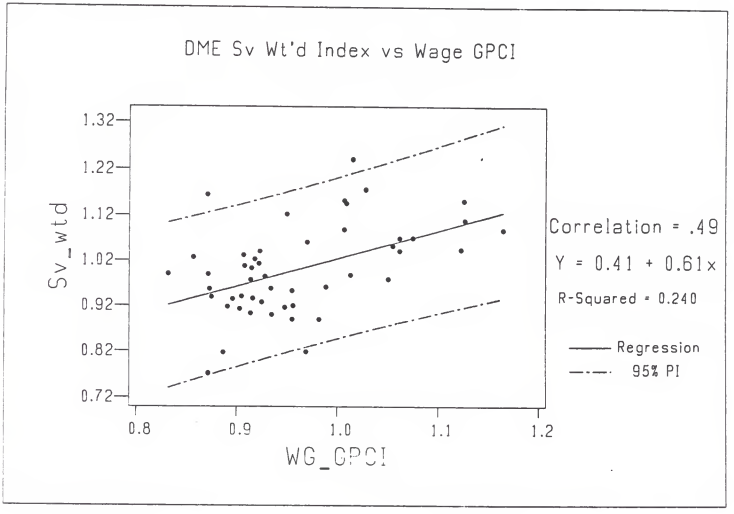
Graph 1: DME Service Weighted Index of Base Rates Versus the Practice Expense GPCI



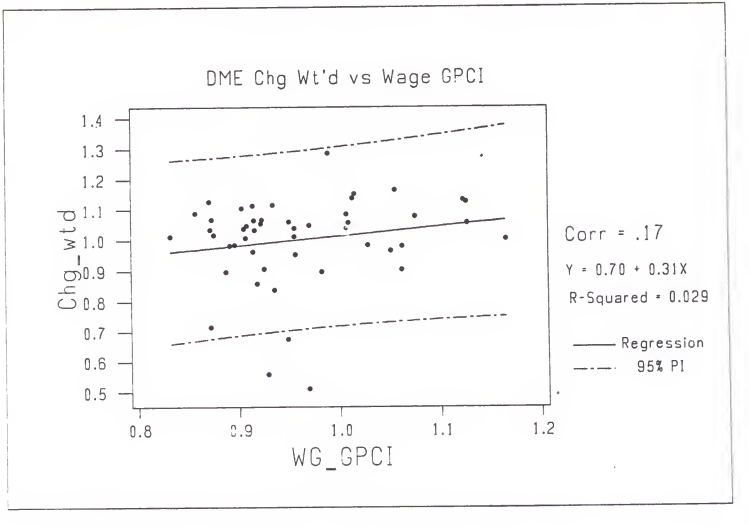
Graph 2: DME Allowed Charge Weighted Index of Base Rates Versus the Practice Expense GPCI



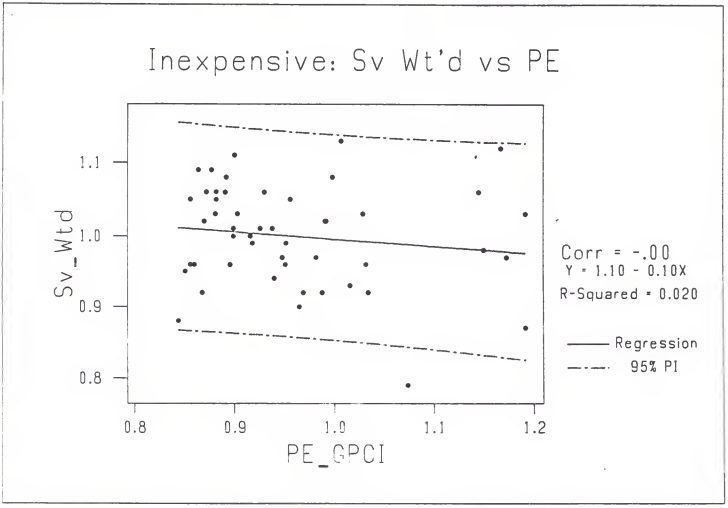
Graph 3: DME Service Weighted Index of Base Rates Versus the Wage GPCI



Graph 4: DME Allowed Charge Weighted Index of Base Rates Versus the Wage GPCI

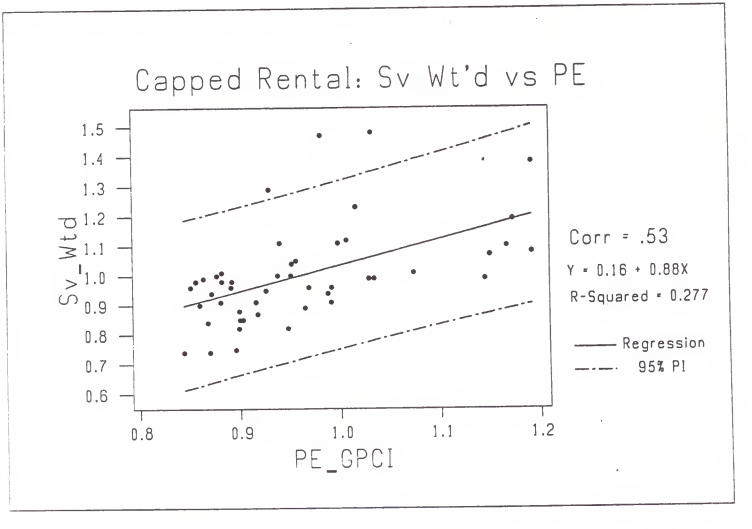


Graph 5: Inexpensive DME: Service Weighted Index of Base Rates Versus the Practice Expense GPCI



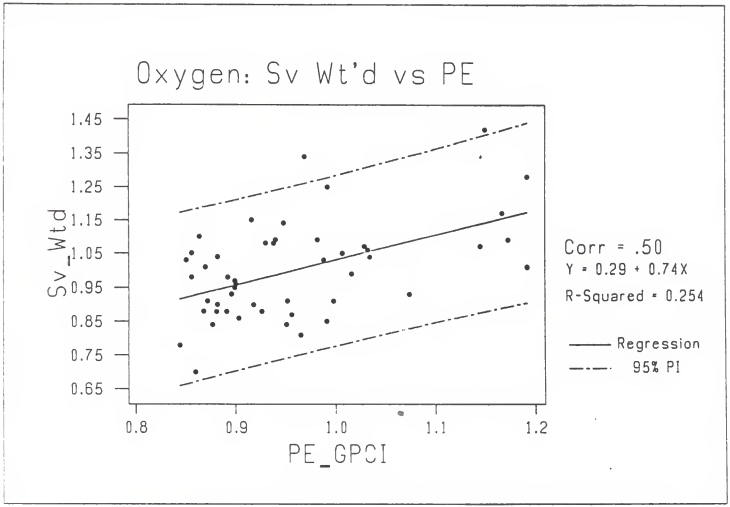
Based on codes: E0105--Canes/crutches
E0135--Walkers
E0163--Commode/bed pans

Graph 6: Capped Rental DME: Service Weighted Index of Base Rates Versus the Practice Expense GPCI



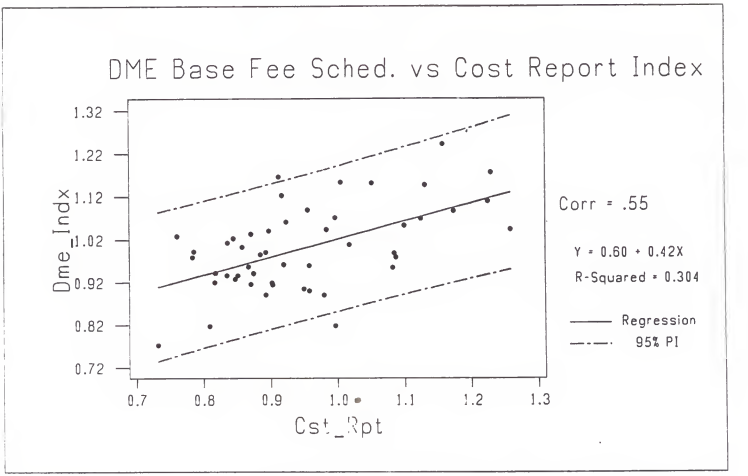
Based on codes: E0255--Hospital beds
E0260--Hospital beds
E0265--Hospital beds
E0570--Nebulizers
E1130--Wheel chairs
E1150--Wheel chairs

Graph 7: Oxygen DME: Service Weighted Index of Base Rates Versus the Practice Expense GPCI

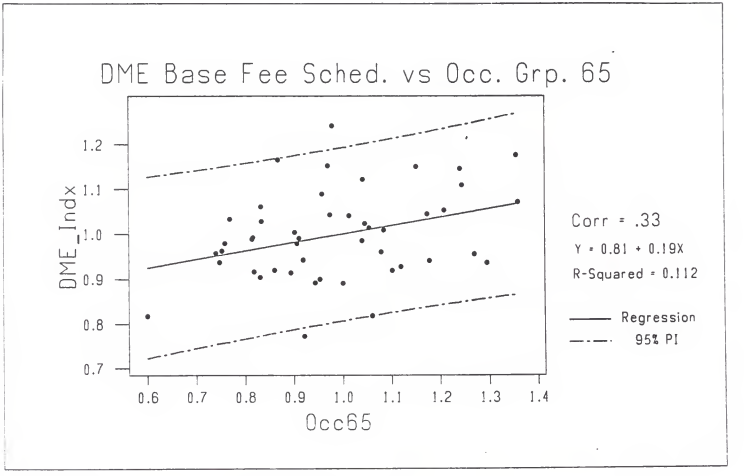


Based on codes: E0431--Oxygen
E1400--Oxygen
E1401--Oxygen
E1403--Oxygen

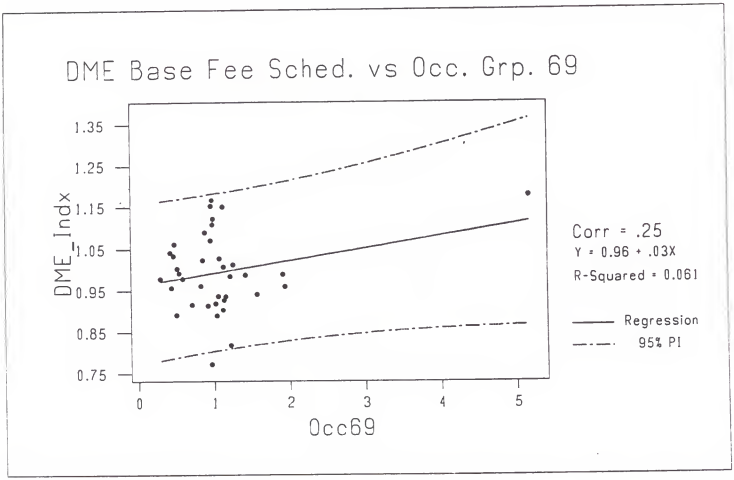
Graph 8: DME Base Fee Schedule Versus the Cost Report Index



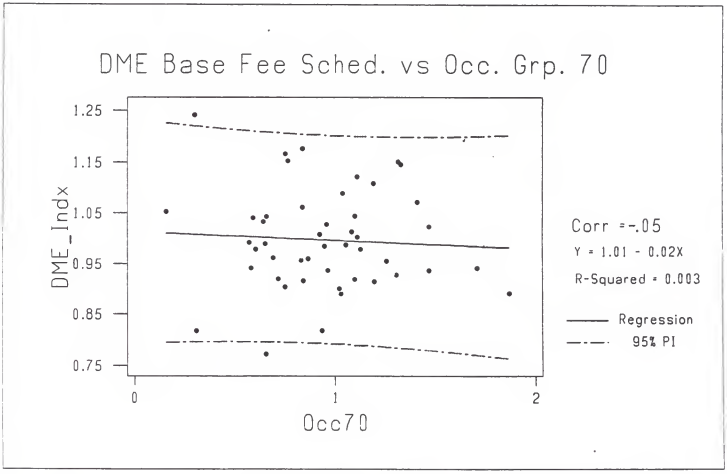
Graph 9: DME Base Fee Schedule Versus Service Occupations Index from 1990 U. S. Census



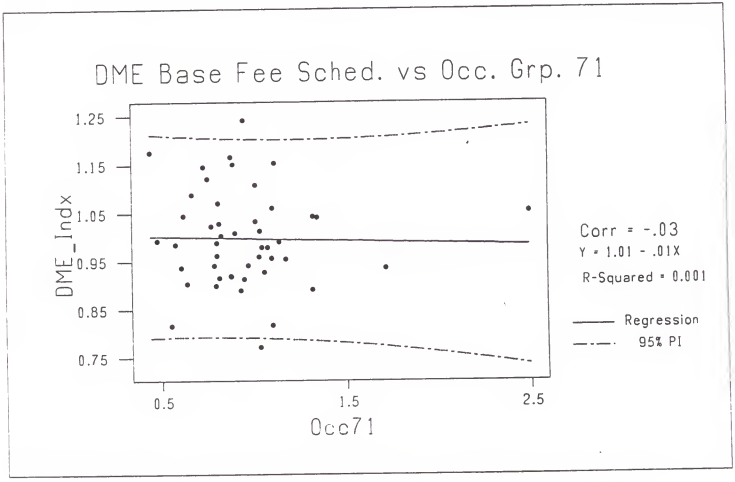
Graph 10: DME Base Fee Schedule Versus Health Aides (less nurses) Index from 1990 U. S. Census



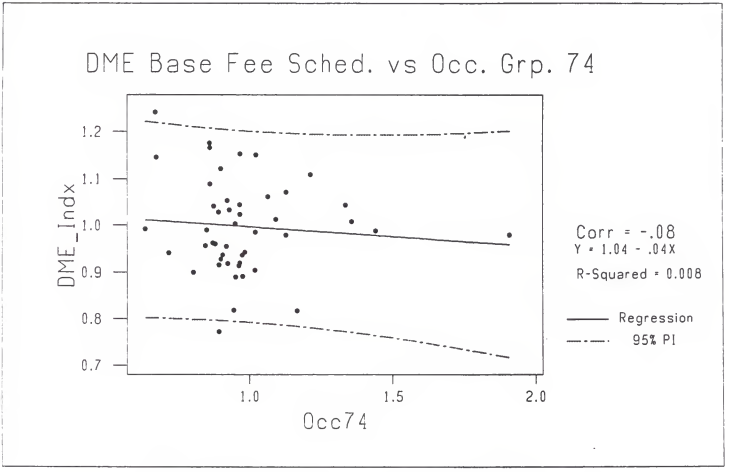
Graph 11: DME Base Fee Schedule Versus Nursing Aides, Orderlies, and Attendants Index from 1990 U. S. Census



Graph 12: DME Base Fee Schedule Versus Cleaning and Building Service Occupations Index from 1990 U. S. Census



Graph 13: DME Base Fee Schedule Versus Operators, Fabricators, and Laborers Index from 1990 U. S. Census



APPENDIX E

REPORT ON SURVEYING DME SUPPLIERS TO ESTIMATE GEOGRAPHIC VARIATION IN THE PROPORTION OF SERVICE AND PRODUCT COMPONENTS OF COST

Jing Xing
Health And Safety Resources, Inc.

Scientific, technical, and managerial resources for effectively responding to detrimental conditions which impact on human physiological and environmental health.

126 East Third Ave - Ranson, WVA. 25438 / Telephone (304) 725-1628

Surveying DME Suppliers to Estimate Geographic Variation in the Proportion of Service and Product Components of Costs

Durable Medical Equipment Supplier Product and Service Cost Study
HCFA Contract No. 500-95-0044
April 1996

Background

Public Law 103-432 requires that the Health Care Financing Administration (HCFA) collect and analyze data to determine the proportions of Medicare reimbursable durable medical equipment (DME) costs that are attributable to service and product components. It also requires that HCFA determine the extent to which such proportions vary by type of equipment and by geographic region in which the supplier is located.

Fulfilling this mandate with any reasonable degree of precision is not a simple task. There are hundreds of Medicare reimbursable types of DME with a wide range of service requirements. The allowable charges range from tens of dollars to thousands of dollars per unit. There are also some 150,000 suppliers in the country, ranging from large corporations who operate in most or all states to the local pharmacies that supply a few items such as canes and walkers. These considerations make it clear that any cost-effective national data collection effort designed to answer the mandated questions would have to be limited to both high volume DME items and high volume DME suppliers. Thus, the data on which national policy is developed will likely be based on the largest players. The alternative is to conduct a very costly national survey.

Consultations with industry representatives and Federal advisors indicated that it will not be a simple matter for suppliers to separate the service and product components of costs for individual DME items. There was, however, a general consensus that product costs are not likely to vary significantly across the country. To the extent that this is true, any observed geographic and product variation can be attributed to service costs.

Based on experiences from this study and previous surveys, it may be difficult

to acheive voluntary compliance by DME suppliers to provide the necessary cost share data from a survey. Further, if such data were provided by suppliers, there is the potential for bias to creep into the responses, even, perhaps, unwittingly on the part of the suppliers. Also, Congress could, but probably would not, mandate compliance by the suppliers to provide data on product and service cost shares by type of equipment in order to determine geographic variations. Thus, we recommend that HCFA consider a less intensive type of approach which may be practical, but not totally reliable.

The suggested approach to address the problem of determining the cost components involves two steps. Step one would seek the cooperation of several industry representatives to study their operations, develop estimates of their service/product cost proportions, and then meet to reach a consensus on the mean and range of such proportions. The second step would design and carry out a geographically stratified survey of suppliers, send them the results of the initial sample of industry representatives, and ask them to determine where their own operations fall within the consensus range or, if not within that range, how far outside. As suggested above, this process would necessarily be limited to a selected number of DME items. The items would be selected with the advice of the industry, but would include both high volume and some requiring frequent servicing.

The following addresses step two--designing and conducting a nationally representative survey that would supply valid estimates of the variation in service/product proportions of costs for selected high volume DME items across geographic areas. Whether or not geographic variation exists can be interpreted as a very narrow question. It could be answered by showing that a significant difference exists between, say, Tennessee and California. However, it seems unlikely that such a narrow interpretation of the legislation was intended. We have assumed that any survey would be designed to provide representative coverage of several well-defined geographic areas, such as the ten census divisions or the fifty states. As will be pointed out, the choice of the number and size of areas to be surveyed will obviously affect the cost of the survey.

Survey Design - General

To design an efficient survey, it is important to have as much information about the universe to be surveyed as possible. The current information available for this project about DME suppliers is quite limited. An ideal sample would mirror Medicare expenditure experience. With an ultimate objective of developing a geographic index to adjust Medicare payments, it will be necessary to determine the following:

1. Do smaller suppliers have different cost experience (primarily for service components of cost) than larger suppliers? - see attached Exhibits 15 and 16 from the "1995 HIDA Home Care Financial Performance Survey."

2. To what extent do large suppliers dominate the Medicare market?

Assuming that large suppliers significantly dominate the Medicare market and that both large and small suppliers experience comparable geographic variation in service costs, the following is illustrative of what would have to be done to design an efficient survey. It uses SADMERC data for 17 HCFA policy groups of DME items. The data available includes allowed charges and number of units supplied to Medicare beneficiaries (as well as other information) for the last six months of 1995. Of the 17 groups, 11 showed the 40 suppliers with the highest allowed charge for the period. The remaining 6 showed the 200 suppliers with the highest allowed charges.

It is not clear that policy groups are the best units for analysis. Some of them show widely varying unit costs between suppliers, suggesting that some suppliers' products within the group are fundamentally different than others. For example, some suppliers may specialize in motorized wheel chairs and others in manual wheel chairs. It would be best to have homogeneous products to minimize the need for large samples.

Universe

As mentioned above, the universe of suppliers is a diverse group. An efficient design would involve identifying suppliers by size, area of operation, and volume of service within area. It is not certain that SADMERC can supply the necessary data or if it is available in HCFA's central statistical files. Assuming it is not available, a screening survey could be conducted. This would involve sending out a large number of questionnaires to many known suppliers, finding out where they do business and in what volume, and, on the basis of this information, selecting a subsample for detailed data collection.

Theoretically, the universe consists of some 150,000 suppliers of DME equipment. However, as a practical matter, the survey would be limited to the largest suppliers within each area to be surveyed. For the purpose of this illustration, we assume that the universe will be limited to the 200 suppliers with highest allowed charges as shown in the SADMERC data.

The available data for the 17 policy groups show that four suppliers are consistently in the top ten high volume suppliers.

Supplier	Percent of Time (out of 17) in the Top 10
LINCARE, INC	59
HOMEDCO, INC*	71
ABBEY MEDICAL, INC*	65
AMERICAN HOME PATIENT, INC	71

* Merged to form APRIA Health Care, Inc

These or others like them that turn out to be the largest suppliers for a wide variety of the type of equipment of interest would be sampled with certainty.

There would actually be several universes involved in this survey--one for each geographic area of interest. At this time, we do not have the data needed to precisely define the universe of suppliers in whatever geographic areas it is decided to survey. It is possible to imagine two basic types of suppliers--those who serve in a single area and those who serve in more than one area. For the latter, cost data would have to collected separately by area. It is also likely that not all suppliers will supply all items for which we are collecting cost data. Thus, the sample design may have to be tailor-made to fit the characteristics of the suppliers in each area.

To properly form the universes, we would need at a minimum to identify the largest 200 (or whatever number deemed appropriate) suppliers of the equipment of interest in each area to be surveyed. We would need to determine if SADMERC could supply the same data we currently have on an area-served basis for the particular type of equipment of interest (instead of policy groups).

Stratification

It would probably be desirable to form 3 or 4 strata based on Medicare allowed charges, although there is little evidence in the available data to suggest that volume is correlated with unit costs. It may be more important to stratify on urban/rural areas if suppliers can break out their cost by geographic classification.

Sample Size

To estimate sample size, we need some knowledge of the variation in costs across suppliers. For this illustration, we analyzed the six policy groups for which data was available for the largest 200 suppliers. As mentioned above, some policy groups show large variations in unit charge, apparently because of non-homogeneous products. Thus, we chose the policy group "Pneumatic Compression Device" to illustrate how sample size could be determined. This group was chosen because it appears to be a fairly homogeneous product from supplier to supplier while still exhibiting a moderate amount of variation. The group has a mean allowed charge per unit of about $2,000 and a coefficient of variation (CV) of about 0.26. The larger the CV the larger the sample size needed to achieve a specified level of precision. Thus, in practice, we would determine sample size on the basis of the type of DME with largest CV. The sample would then yield as good or better precision for the other types of equipment.

If we limit the universe in each area to the 200 largest suppliers, the CV of .26 implies a sample size of 23 responding suppliers in each area. This would yield a

relative sampling error of 5% which implies a 95% confidence interval of +/- 10%. (For example, an estimated mean of $2,000 would have a 95% confidence interval of $1,800 to $2,200.) In our experience, this level of precision is satisfactory for this type of data.

If some of the universe of 200 do not handle all of the selected items, the sample of 23 respondents would have to be supplemented until all items are sampled at an adequate rate. It is conceivable that the supplemented sample could be as large as 50 responding suppliers. If this turned out to be the case, and we decided to survey each of the 10 census divisions, the maximum nationwide sample size would be 500 suppliers. We expect that this would be adjusted downward since most of the large suppliers that operate in more than one area. Of course, surveying at the state level would imply a maximum of 2,500 suppliers. All of these sample sizes would have to be adjusted upward for the expected level of nonresponse.

When surveying a population for which there is no previous experience, it is difficult to determine what the level of response will be. In general, government standards strive for a response rate of 75 percent or greater. If we assume a 75 percent response rate, the sample sizes would have to be increased by one-third to capture the required number of responses. If the response rate fell below 75 percent, there is the potential for seriously biased results. Assessing whether nonresponse bias exists usually requires intensive and costly followup on a subset of nonrespondents.

Conclusions

It is clear that collecting DME cost data through a national survey presents a number of difficulties. We know that the universe consists of a highly diverse group of suppliers both in size and the variety of products sold. An efficiently designed survey would require some knowledge of this diversity at the individual supplier level. It may be necessary to obtain this data through a large screening survey that asks suppliers a few questions about their business, and then to send a more detailed questionnaire to a subsample of suppliers who pass the screens.

A stated above, it would probably be necessary to limit the final survey to the largest suppliers in each area. If so, any differences between large and small suppliers would not be reflected in the survey estimates. Also, it will be necessary to limit the number of DME items for which data is collected. This raises the question of which items should be selected. Assuming that there is no appreciable geographic difference in product costs, any variations in total cost would reflect differences in service costs. Thus, one approach would be to limit the survey to high and mid-level service cost items. It might even be desirable to develop separate geographic adjusters for high and mid-level service categories.

Finally, there is the issue of the extent to which suppliers would cooperate and provide reliable data in a survey. If the response rate is low, it could be difficult to get unbiased estimates of geographic variations in cost.

OPERATING CHARACTERISTICS AS DRIVEN BY SIZE OF FIRM

Exhibits 15 and 16 summarize operating differences in important industry characteristics as driven by company size. There are four size categories ranging from relatively small firms (under $1 million in net revenue) to relatively large companies with revenue of more than $10 million. As noted in Exhibit 1, 73% of survey respondents are concentrated in two size categories—$1-$3 million and $3-$10 million. Also, the over $10 million category includes firms with a substantial range of sizes—from $10 million to "super-size." Do note that some differences observed in the over $10 million category are often driven by higher home IV positions rather than just size.

Exhibit 15
Operating Characteristics By Size of Firm

			By Company Size			
Key Operating Characteristics	Your Firm	Industry Average	Under $1,000,000	$1,000,000 — $2,999,999	$ 3,000,000 — $10,000,000	Over $10,000,000
1994 Growth	_____%	12%	8%	12%	10%	20%
Cost of Goods Rented & Sold	_____%	36%	33%	33%	38%	40%
Total Operating Expenses	_____%	55%	55%	57%	55%	55%
Total Personnel Expenses	_____%	33%	34%	33%	33%	35%
Asset Utilization Ratio	_____ x	1.7 x	1.6 x	1.6 x	1.8 x	2.1 x
Leverage Ratio	_____ x	1.9 x	1.2 x	2.0 x	1.9 x	2.5 x
Inventory Turnover	_____ x	5.3 x	3.5 x	4.8 x	5.6 x	8.6 x
Rental Inventory Actually Rented	_____%	80%	85%	75%	85%	77%
Percent of Total Revenue From Rentals	_____%	55%	65%	55%	49%	35%
Accounts Receivable Days Outstanding	____ days	84	88	85	81	93
Revenue Per Employee ($000)	$ _____	$91	$79	$91	$94	$98
Gross Margin Per Employee ($000)	$ _____	$59	$51	$58	$60	$63

Exhibit 16
Key Operating Expenses By Size of Firm

Key Expense Categories	Your Firm	Industry Average	By Company Size: Under $1,000,000	$1,000,000 — $2,999,999	$ 3,000,000 — $10,000,000	Over $10,000,000
Salaries, Wages, Commissions, etc.	_____%	27.9%	30.0%	27.4%	27.9%	29.1%
Employee Benefits	_____%	4.9%	4.4%	5.2%	5.0%	5.3%
Delivery and Pick-up Expense	_____%	2.2%	2.1%	2.0%	2.3%	2.7%
Outside Sales Personnel Cost	_____%	2.9%	6.0%	3.5%	2.2%	1.8%
Salesperson Expenses	_____%	0.4%	0.9%	0.4%	0.4%	0.4%
Advertising and Sales Promotion	_____%	1.1%	1.3%	1.4%	0.9%	0.7%
Occupancy Expense	_____%	3.4%	4.1%	3.9%	2.8%	2.6%
Computer Personnel Expense	_____%	0.8%	3.5%	1.3%	0.7%	0.4%
Computer Operation Expense	_____%	0.7%	0.9%	0.7%	0.6%	1.0%
Interest Expense	_____%	1.2%	1.6%	1.2%	1.2%	0.4%
All Property and Liability Insurance	_____%	0.9%	1.0%	1.1%	0.8%	0.7%
Bad Debts	_____%	3.0%	2.9%	3.0%	3.0%	2.7%
Postage	_____%	0.3%	0.4%	0.4%	0.3%	0.3%
Telephone	_____%	1.2%	1.3%	1.2%	1.0%	1.4%

KEY OPERATING RATIOS

Exhibits 11, 13, 15 and 39 display strategic operating profiles of firms by profit performance, business mix and size. The nature and calculation of each of the ratios contained in the exhibits are explained below:

Revenue Size

Revenue size is the size of the average firm in that category. For example, the "Industry Average" of $2,662,000 is the average size of all firms that participated in the survey.

1994 Growth

This is the average percentage of revenue growth that firms reported in the survey. It is total growth, including acquisitions.

Cost of Good Sold and Rented

This is the total cost of merchandise sold and depreciation on merchandise rented. It includes freight paid on incoming merchandise and should be net of any cash or other discounts given by suppliers. Rental items purchased and expensed as inventory should be included as well as lease payments on leased rental equipment.

Total Operating Expenses

This ratio expresses all expenses as a percent of total net revenue. Because of customer service requirements, heavy investments necessary and costly interaction procedures with third party payers, operating expenses in this industry are, by nature, exceptionally high. However, as any industry matures, prices and margins naturally fall. Thus, the most important way to respond and maintain profits is to find ways to drive down operating expenses to offset declining margins.

Total Personnel Expenses

This number is total salaries and wages paid, plus the cost of employee benefits (expressed as a percentage of total revenue). It is clear that this is a labor-intensive industry in that nearly one-third of revenue is consumed by personnel expenses and such expenses are more than one-half of total operating expenses. As a result, efforts to control expenses will have to be focused in personnel functions.

Asset Utilization Ratio

Explained in discussion of strategic profit formula above.

Leverage Ratio

Explained in discussion of strategic profit formula above.

Inventory Turnover

Is calculated as (total net revenue/inventory). As discussed earlier in the report, this number is *total* inventory turnover. Data on separate sales and rental inventory turns was presented in Exhibit 21.

Rental Inventory Actually Rented

This ratio is the portion of the rental inventory that is actually out on rental to customers. In other words, if 85% of the rental inventory is actually rented, 15% is in house available for rental.

Revenue from Rentals

The percent of total revenue from rentals reflects the mix of rental versus sales revenue. The percentage is extremely important because the various rental industries in the U.S. (e.g., furniture, construction/maintenance equipment and home care equipment, etc.) are typically more profitable than their sales counterparts. Thus, for any firm, the ratio of rental and sales in the revenue mix may have an important impact on profit. It is important to recognize that to a certain extent, the sales/rental ratio is a manipulable strategic variable.

Accounts Receivable Days Outstanding

This ratio is an excellent means of evaluating the management of credit and the accounts receivable investment required within an industry. It measures the average length of time (in days) that it takes for accounts to be paid. Days outstanding are calculated by the following two-step formula:

Step 1 $$\frac{\text{Credit Sales and Rentals}}{\text{Net Accounts Receivable}} = \text{Accounts Receivable Turnover}$$

Step 2 $$\frac{\text{Days in Year (365)}}{\text{Accounts Receivable Turnover}} = \text{Days Outstanding}$$

Revenue Per Employee

Revenue per employee is calculated as (total net revenue/number of employees) and is a particularly important expense productivity indicator. Even when highly computerized, the industry is still very labor-intensive.

Gross Margin Per Employee

Gross margin per employee is calculated as (gross margin/number of employees) and is also a key employee productivity indicator. Indeed, it may be more important than revenue per employee in that it is gross margin dollars that have to be adequate to cover operating expenses and provide a profit.