Centers for Medicare & Medicaid Services

R & D Projects Database

PDF TRACKING FORM

Tracking Job Number	***210***	Printed: 6/4/2002	
Document Title	Evaluation of Medicare's Competitive Bidding Demonstration for Durable Medical Equipment, Prosthetics, Orthotics, and Supplies; First Annual Report to Congress		
Author	Anonymous	Document Date	29-Nov-00
Document Description:	Report to Congress, first annual		

Project Specifics

SR Number	98-239
Project Number	500-95-0061/03
Project Title	Evaluation of Competitive Bidding Demonstration for DME and POS
Awardee	University of Wisconsin - Madison/Research Triangle Institute/Northwestern Univ.
Project Officer	Meadow, Ann
Principle Investigator	Karon, Sarita
Funding Level	2315249
Start Date	9/30/1998
End Date	5/15/2003
Project Description:	HCFA has mounted a demonstration to test the feasibility and effectiveness of establishing Medicare fees for durable medical equipment (DME) and prosthetics, prosthetic devices, orthotics and supplies (POS) through a competitive bidding process. The fund

Initiated (CMS):	sgalloway	Date:	04-Jun-02	Accepted (IQ):		Date:	
Released (IQ):		Date:		Received (Sub):		Date:	
Finished (Sub):		Date:		QC'd (IQ):		Date:	
Returned (IQ):		Date:		pproved (CMS):		Date:	

First Annual Report to Congress:
Evaluation of Medicare's Competitive Bidding Demonstration For Durable Medical Equipment, Prosthetics, Orthotics, and Supplies

November 30, 2000

U.S. Department of Health and Human Services
Health Care Financing Administration
Baltimore, Maryland

Purpose

Section 1847 of the Social Security Act, as added by Section 4319 of Public Law 105-33, the Balanced Budget Act of 1997 (BBA 1997), directs the Secretary of Health and Human Services to report annually on the impact of competitive bidding projects authorized in the BBA. Specifically, Section 1847(c)(1) directs the Secretary to "evaluate the impact of the demonstration projects on Medicare program payments access, diversity of product selection, and quality." The Secretary is to report annually and no later than 6 months after the demonstrations terminate on December 31, 2002. In accordance with the requirements, the Secretary is hereby submitting the First Annual Report.

Background

Section 1847 of the Social Security Act authorized the Secretary to conduct Demonstration Projects for Competitive Acquisition of Items and Services. In these projects, Medicare Part B items and services (other than physician services) can be furnished under competitively awarded contracts. The competitions are conducted in competitive acquisition areas, defined under the act as a Metropolitan Statistical Area (MSA) or a smaller area within an MSA.

In the first site of the demonstration, the Health Care Financing Administration (HCFA) selected five categories of durable medical equipment, prosthetics, orthotics and supplies (DMEPOS) for competitive bidding in Polk County, Florida. (A second site, San Antonio, Texas, was selected in Spring 2000.) The categories were oxygen supplies and equipment (required by statute), hospital beds and accessories, enteral nutrition, urological supplies, and surgical dressings. Bids for a total of 172 individual product and services codes were submitted in March 1999. A total of 16 winning suppliers began providing demonstration products and services in Polk County on October 1, 1999. A new fee schedule for Polk County replaced the statewide Medicare DMEPOS fee schedule.

HCFA contracted with the University of Wisconsin-Madison in 1998 to conduct the evaluation. The evaluation team consists of the University, the Research Triangle Institute, and Northwestern University. For the First Annual Report, the evaluation activities have included a beneficiary survey; five site visits by the team to Polk County, Florida, and to the Medicare carrier managing the project in 1999 and 2000; focus groups in Polk County with suppliers and members of other affected groups; analysis of suppliers' bids and comparison of fee schedules; and review of operational and documentary materials such as ombudsman records and the demonstration Request for Bid Proposals (RFP) from suppliers.

Results of the Evaluation to Date

This evaluation focuses on five major areas of impact:

1. Medicare expenditures;
2. beneficiary access;
3. quality and product selection;
4. market competitiveness; and
5. administrative feasibility of the reimbursement system.

The remainder of this report summarizes the key evaluation findings in each impact area, based primarily on the first 9 months of demonstration operations. In general, we find that the demonstration is proceeding smoothly and without serious adverse impacts in any of the evaluation areas. Estimates suggest significant savings from competitive bidding. A detailed contractor report on these findings, including an executive summary, is attached as an appendix.

Medicare expenditures

The Medicare fees that resulted from the bidding competition suggest substantial savings are likely from competitive bidding for the products and services involved in Polk County. Our current estimates suggest savings of about 17 percent annually.

For each demonstration product or service, the prices bid by winning suppliers were used to determine the competitively bid fee schedule price. The resulting Medicare fees under the competitively bid fee schedule in Polk County are lower than the fees in the Year 2000 Medicare fee schedule for 15 of 15 oxygen items, 28 of 31 hospital beds and accessories items, 22 of 24 enteral nutrition items, and 37 of 40 urological items. In the surgical dressings category, the fees in the competitively bid fee schedule are lower than the fees in the Medicare fee schedule for 6 of 62 items. This means that, for at least 90 percent of the items in four of the product categories, the demonstration produced lower fees than the existing Medicare fee schedule.

In the surgical dressings category, fees were lower for 10 percent of the items, and higher for the remaining 90 percent. It is likely that the fees for surgical dressings would have been lower for more than 6 of the 62 items under an improvement in the technical procedure for summarizing each bidder's prices into a single bid for comparison purposes. This change has been implemented in HCFA's second demonstration site, San Antonio, Texas, and will be used in any additional future demonstration sites.

The 15 oxygen fees under the competitively bid fee schedule represent a discount of 6 to 33 percent from the Medicare fee schedule, with 12 of 15 categories exhibiting a discount of at least 10 percent. The discount takes into account percentage fee reductions under the demonstration and are therefore in addition to the BBA-mandated fee schedule reductions.

Our total projected savings estimate for both Medicare and Polk County beneficiaries is nearly $1.3 million annually, 17 percent less than payments that would have been incurred under the Year 2000 Medicare fee schedule. Medicare program outlays account

for about $1 million of this amount, while reductions in beneficiary copayments account for about $250,000. (There are about 92,000 beneficiaries residing in the county, but most do not use DMEPOS.)

By product category, our savings estimate for Medicare and Polk County beneficiaries is 16 percent for oxygen supplies, 29 percent for hospital beds and accessories, 16 percent for enteral nutrition, and 18 percent for urological supplies. We estimate that annual expenditures by Medicare and Polk County beneficiaries for surgical dressings will increase 10 percent.

The actual amount of savings that will result from competitive bidding depends upon the volume of services in Polk County. Another factor determining actual savings is the impact of demonstration transition policies allowing payments under the Medicare fee schedule for capped-rental or purchase agreements until the agreements run out. The above estimates are based on volume data for 1998, the most recent data available at the time the bidding occurred, and they do not take transition policies into account. However, we do not expect the final savings estimates to differ markedly from our current ones.

Access to DMEPOS goods and services

The demonstration has had no adverse effects on beneficiary access that we could determine from our evaluation activities thus far. Monitoring conducted by HCFA's ombudsman, as well as by the evaluation team during site visits, turned up only a few specific complaints about impediments to access. These arose during the transition to demonstration operations beginning in October 1999. Incidents known to occur were either addressed by the Ombudsman or were resolved in the course of the consumer's selecting a supplier more to his or her liking. Thus it appears that normal market processes were at work in which a few suppliers received feedback from the Ombudsman, referral agents, and beneficiaries that should produce improved performance.

The encouraging access situation appears to be attributable to several factors in the design and outcome of the bidding demonstration. First, the demonstration design provided for multiple winners in each product category. The multiple winners are expected to compete for market share, and in so doing have a strong incentive to provide services in a manner that promotes timely and appropriate access to DMEPOS goods and services. In Polk County, there are 13 winning suppliers for oxygen, 10 for hospital beds and accessories, 7 for enteral nutrition, 5 for urological supplies, and 4 for surgical dressings. (These counts sum to more than 16 because certain suppliers won in more than one product category.)

Second, winner selection procedures explicitly considered bidders' capacity and service capabilities. Suppliers' ability to deliver quickly, respond to after-hours emergencies, and follow natural disaster procedures were assessed. In addition, 12 of the 16 winning firms agreed to provide service to every area of the county.

Third, transition policies were designed specifically to avoid access dislocations. These policies include the capped-rental provisions noted above, and the provision permitting nondemonstration oxygen suppliers to continue serving their existing patients under the competitively bid fee schedule. All nondemonstration oxygen suppliers agreed to continue serving their oxygen patients under the provision; their decision eliminated the need for patients to establish a relationship with a new oxygen supplier.

More conclusive data on access will be available in the Second Annual Report to Congress. That report will contain the results of pre- and post-implementation surveys of beneficiaries in Polk County and a comparison county. The analysis will assess any changes in the generally high levels of access and supplier performance that existed before the demonstration. Data collected among suppliers will provide additional resources for the evaluation of access. Further, the evaluation team will continue qualitative data collection on access impacts.

Quality and product selection

With the possible exception of urological supplies, there have been no systematic reports of a reduction in the quality and selection of goods and services provided to beneficiaries under the demonstration. After the start of the demonstration, a number of referral agents reported that the new supplier they initially selected did not please them, but that they subsequently found a different demonstration supplier to be satisfactory. It appears that these instances were transitory. In a focus group 6 months after the demonstration prices took effect, referral agents reported that overall quality was not lower under the demonstration.

Evidence concerning possible problems with urological supplies is both anecdotal and inferential, warranting continued close monitoring of this product category. Anecdotally, a nondemonstration supplier reported that several urological patients sought supplies from the firm after being dissatisfied with a demonstration supplier. A home health agency reported quality problems with catheters provided by a demonstration supplier. Complaints to the Ombudsman indicated deficiencies in the quality and quantity of urological supplies from one winning supplier. In November 2000, the firm agreed in writing to correct the deficiencies.

We infer that there is a potential for quality and product selection problems because of indications that the competitively bid fees frequently do not cover the acquisition costs of the urological items. The extent of this disparity varies with the supplier. A disparity gives suppliers an incentive to substitute lower-priced products (which may or may not be of inferior quality), when they are in a position to do so. In practice, however, suppliers are often unable to choose urological products for beneficiaries. This is due to beneficiary preferences and experiences with products, and due to the requirement that suppliers provide the brand prescribed by the physician, if a brand is named in the prescription. Such constraints on suppliers are consistent with reports from referral

agents that they have not observed suppliers systematically changing their offerings of urological products.

In summary, available data from site visits and from discussions with all five urological suppliers lead us to conclude that the quality and selection of urological items probably have not deteriorated, although quality and selection may be under pressure from the low prices determined through the bidding competition. The situation continues to be monitored by the demonstration Ombudsman. Higher prices for urological supplies may result from the second round of competitive bidding in Polk County, which is scheduled take place in 2001. Higher prices would alleviate potential pressures on the quality of urological supplies.

There is no evidence at this time suggesting a reduction in the quality of the other product categories. The diversity of surgical dressings may have improved under the demonstration. One winning supplier, new to Polk County, uses wound care supplies and techniques that were not generally offered previously in the area, and the presence of this firm may have resulted in a wider selection of wound care supplies. Additionally, the multiple-winner design appears to be promoting competition among suppliers over quality.

As with our analysis of access impacts, a fuller understanding of the quality situation awaits further evaluation results. More complete data on quality and product diversity will be available after we conduct the second round of the beneficiary survey. Results will be reported in next year's Report to Congress.

Market competitiveness

Competitive bidding in Polk County resulted in 16 winning firms out of 30 that submitted bids. More than 40 firms had non-minimal business volume in the five product categories before the demonstration began. Nevertheless, the evaluation suggests that the DMEPOS market in Polk County remains reasonably competitive. Both small and large firms bid successfully. The local industry does not evidence serious financial difficulties as a result of the demonstration. Three firms filed for bankruptcy (two demonstration suppliers and one nondemonstration supplier), but the filings are unrelated to the demonstration, and the firms continue to provide DMEPOS in Polk County. After the demonstration began, a large, national oxygen firm that did not win a bid acquired two smaller demonstration suppliers. These transactions may suggest that the financial health of the purchased firms did not interfere with their attractiveness as acquisitions.

The experience with the demonstration so far has revealed several market competition issues that can complicate Medicare competitive bidding projects, although they do not pose serious problems for the viability of the bidding initiatives. One issue concerns mergers and acquisitions. The acquisitions by the large oxygen firm caused dissatisfaction among demonstration suppliers, even though HCFA's policy allowing purchases that transfer demonstration status to the acquiring firm was known in advance. The policy is intended to preserve access to DMEPOS goods and supplies and to avoid

undue restraints on routine industry mergers and acquisitions. The acquisitions in Polk raise the question whether the ground rules may actually promote mergers by large firms that choose not to bid or lose the bidding, despite indications that the transactions of the large oxygen company may have been part of its ongoing business development program. Another question is what effect, if any, the transferability of demonstration status may have on bidding behavior and price reductions achieved during the bidding phase of the project. Further experience with Medicare competitive bidding demonstrations may inform future policy in this area.

A second issue concerns competitive behaviors among both nondemonstration and demonstration suppliers after the bidding phase. The experience in Polk County revealed behavior by a nondemonstration supplier that was intended to maintain its revenues for non-demonstration product categories but that raised questions of fair play. Specifically, this supplier took referrals from local agents, provided the nondemonstration products in the order, and then referred the remaining business to a specific demonstration supplier. Many of the winning suppliers resented this practice, which was subsequently addressed by HCFA through efforts to educate referring agents to make direct referrals. Another practice was a demonstration supplier's use of a subcontract with a nondemonstration supplier to provide demonstration services. Again, winning suppliers questioned the propriety of this practice, and HCFA subsequently modified its original policy in this area, limiting subcontracting to five percent of the demonstration supplier's claims.

It is worth noting that both of these activities took place relatively early in the project, when changes in revenues often fell far below suppliers' initial expectations, in part due to the transition policies intended to protect beneficiary access to services. The unexpectedly low volumes may have heightened suppliers' sensitivity to their competitors' behaviors. We expect that volumes for demonstration suppliers will eventually increase, which may in turn affect perceptions of the significance of certain activities. At the very least, based on this experience, future participants will better comprehend the revenue changes likely in the early part of the contract period. They should also benefit from a deeper understanding of each other's competitive response and of HCFA's policies regulating it.

To draw further conclusions about the impact of the demonstration on market competitiveness, activities later in the evaluation will focus on financial and market share data, and on the results of the second round of bidding in 2001. These studies will be reported in future annual Reports to Congress.

Administrative feasibility of the reimbursement system

The evaluation of administrative feasibility addresses the ease of implementing the process of competitive bidding and of administering the post-bidding phases, including the transition to approved suppliers, new reimbursement procedures, and site monitoring.

Information from suppliers concerning the bidding phase indicates that suppliers generally felt sufficiently informed about the nature of the project, bidding procedures,

and demonstration requirements. Based on the evaluation team's discussions with other stakeholders, most informants believed that public information and notification activities among beneficiaries, referral agents, and others were effective. Bidding suppliers reported few problems in preparing their bids. Since the commencement of the demonstration, no problems have been encountered in supplier claims processing.

The task of selecting the winning bids was assigned to a panel of reimbursement and DMEPOS experts under the direction of Palmetto Government Benefits Administrators (PGBA), the carrier managing the demonstration. In addition to pricing, the panel considered the volume capacity of the bidders; customer service and satisfaction information; the bidder's ability to meet other quality standards; business ethics; data collection and retention; and financial stability. Panel members used a scoring system to assess the bids. The bidder selection process also involved an on-site assessment to confirm that competitively selected bidders met specified quality and service requirements. HCFA reviewed the panel's recommendations and requested several additions to the list of winners to ensure sufficient capacity in the demonstration area. The new firms had to remedy quality deficiencies as a condition for being selected. The ground rules also allowed for reconsideration of the selection decisions at the request of suppliers.

The bid evaluation process proved to be excessively time-consuming during the first round of bidding. To streamline the process in the future, HCFA and PGBA are considering refinements to the evaluation process. For example, panel members can be aided in their evaluation by a structured review form, and detailed quality-related subfactors can be assigned point values to expand the scoring system.

For monitoring the demonstration in the post-bidding phase, HCFA appointed an ombudsman. The ombudsman has played a pivotal role in the smooth functioning of the Polk County demonstration. Site visit interviews by the evaluation team indicate that the ombudsman has strong support among both beneficiaries and suppliers. The ombudsman responds to complaints and inquiries on a "hotline," and conducts education and outreach. She monitors suppliers through both complaints and routine inspections. In general, the ombudsman serves as HCFA's and PGBA's "eyes and ears" in Polk County, and has also facilitated HCFA's communications with stakeholders.

Summary

The competitive bidding authority under the BBA is scheduled to end in approximately 2 years. Our evaluation activities during the first year of the demonstration give us reason to be optimistic about its eventual success. The competitively bid fee schedule is significantly more favorable to Medicare than the existing Medicare fee schedule. No major access, quality, or product selection issues have surfaced so far. Medicare's payment procedures under the new system are functioning well. Suppliers appear to have adjusted satisfactorily to the new arrangements and the changed competitive environment.

This evaluation study will continue through the duration of the demonstration. The largely qualitative evidence gathered thus far will be supplemented by quantitative evidence from surveys and other data resources such as Medicare claims. After all the data are in, we will be fully prepared to make a final evaluation of the experiment.

First Annual Report to Congress:
Evaluation of Medicare's Competitive Bidding Demonstration For Durable Medical Equipment, Prosthetics, Orthotics, and Supplies

Tommy G. Thompson
Secretary of Health and Human Services
2001

September 2000
(Revised January 2001)

Evaluation of Medicare's Competitive Bidding Demonstration for DMEPOS

First-Year Annual Evaluation Report

HCFA Contract No. 500-95-0061/T.O. #3

Prepared for

Ann Meadow, Sc.D.
Health Care Financing Administration
Office of Strategic Planning
Mail Stop C3-19-26
7500 Security Boulevard
Baltimore, MD 21244-1850

Prepared by

University of Wisconsin–Madison
Center for Health Systems Research and Analysis
610 Walnut Street
Madison, WI 53705

Research Triangle Institute
Center for Economics Research
3040 Cornwallis Road
Research Triangle Park, NC 27709

Northwestern University
Institute for Health Services Research and Policy Studies
629 Noyes Street
Evanston, IL 60208

RTI Project Number 7346-002-008

First Annual Report to Congress:
Evaluation of Medicare's Competitive Bidding Demonstration
For Durable Medical Equipment, Prosthetics, Orthotics, and Supplies

Tommy G. Thompson
Secretary of Health and Human Services
2001

RTI Project Number
7346-002-008

Evaluation of Medicare's Competitive Bidding Demonstration for DMEPOS

First-Year Annual Evaluation Report

HCFA Contract No. 500-95-0061/T.O. #3

September 2000
(Revised November 2000)

Prepared for

Ann Meadow, Sc.D.
Health Care Financing Administration
Office of Strategic Planning, Mail Stop C3-19-26
7500 Security Boulevard
Baltimore, MD 21244-1850

Prepared by

Sara Karon, Ph.D.
Kay Jewell, M.D.
University of Wisconsin–Madison
Center for Health Systems Research and Analysis
610 Walnut Street
Madison, WI 53705

Thomas Hoerger, Ph.D., Project Director
Kristine Broglio
Shulamit Bernard, Ph.D.
Claire Gibbons, M.P.H.
Research Triangle Institute
Center for Economics Research
3040 Cornwallis Road
Research Triangle Park, NC 27709

Richard Lindrooth, Ph.D.
Teresa Waters, Ph.D.
Northwestern University
Institute for Health Services Research and Policy Studies
629 Noyes Street
Evanston, IL 60208

CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

ES.1 Background and Methods

ES.1.1 Background and Purpose

The Balanced Budget Act of 1997 (BBA 97) (U.S. Congress, 1997) authorizes the Secretary of the Department of Health and Human Services to implement up to five demonstration projects of competitive bidding for Medicare Part B items and services, except physician services. On the basis of this authority, the Health Care Financing Administration (HCFA) planned and implemented the DMEPOS Competitive Bidding Demonstration to test the use of competitive bidding to set prices for durable medical equipment (DME) and prosthetics, orthotics, and supplies (POS). Bidding in the first demonstration site, Polk County, Florida, was conducted in early 1999, and the resulting prices took effect on October 1, 1999.

BBA 97 also requires that the demonstrations be evaluated for their impact on Medicare program payments, access, diversity of product selection, and quality. The purpose of this report is to describe the results to date of the evaluation of the DMEPOS Competitive Bidding Demonstration. We evaluate the impact of the demonstration on

- Medicare expenditures,
- beneficiary access to care,
- quality of care (including diversity of product selection),
- competitiveness of the market, and
- the reimbursement system.

This report focuses on the evaluation of the first demonstration site, Polk County, Florida. We emphasize that the demonstration in Polk County will continue until September 30, 2002, and our evaluation will continue throughout this period. This evaluation report covers the period leading up to the demonstration and the first 9 of the 36 months that the demonstration prices will be in effect. Although we have learned a number of lessons from the evaluation so far, we caution that it is premature to make final conclusions about the long-term impact of the demonstration on many of the evaluation issues.

ES.1.2 Demonstration Overview

The Polk County DMEPOS Competitive Bidding Demonstration is scheduled to last for 3 years. It will have two rounds of bidding. The first round resulted in a fee schedule that will be in effect for 2 years, and the fee schedule based on the second round of bidding will be in effect for 1 year. Each of the five product categories included in the demonstration (oxygen supplies and equipment, hospital beds and accessories, enteral nutrition, urological supplies, and surgical dressings) is considered a separate competition, so suppliers are required to submit separate bids for each product category in which they wish to compete.

Demonstration suppliers are selected using a four-stage bid evaluation process. First, those bidders that meet the demonstration's eligibility and quality standards are identified. Second, a composite bid for each bidder is calculated from their bid submissions, and a cutoff composite price is chosen. Only those bids that are at or below this cutoff will be considered for further evaluation. In setting the cutoff, the supply capacity and geographic coverage provided by the bidders are considered. Finally, references from referral agents (hospital discharge planners, social workers, physician office staff, and home health workers who refer patients to DMEPOS suppliers) are evaluated and on-site inspections are made to verify that the remaining bidders meet general and product-specific quality and service requirements.

At the end of the bid evaluation process, multiple demonstration suppliers are selected in each category. Demonstration suppliers are not guaranteed to receive a set number of Medicare patients. These provisions of the demonstration are designed to promote competition between demonstration suppliers for patients. This competition, it is hoped, will encourage suppliers to maintain quality and service levels during the demonstration.

The new fee schedule is determined from the demonstration suppliers' bids. The demonstration suppliers will be reimbursed according to this new fee schedule, minus the 20 percent beneficiary copayment and any applicable deductibles.

Several transition policies cover beneficiary/supplier relationships that existed prior to the demonstration. Beneficiaries may continue to receive oxygen supplies from their original supplier, regardless of whether the supplier is a demonstration supplier. However, payments will be made according to the new demonstration fee schedule. Those beneficiaries that have preexisting rental agreements for enteral pumps and hospital beds may continue to use their current supplier, and these suppliers will be paid the preexisting fees for the duration of the rental period. If beneficiaries use a nondemonstration supplier of urological supplies or surgical

dressings in error, then Medicare will cover the first 2 months of claims while the beneficiary locates a new supplier.

The demonstration includes quality standards for demonstration suppliers, and these standards exceed current standards. Also, HCFA designated an Ombudsman to receive, record, and respond to complaints from beneficiaries, physicians, suppliers, and other interested parties.

ES.1.3 Methods and Data

This evaluation requires extensive descriptive and explanatory analyses to evaluate both the effectiveness of the implementation *process* and the *impact* of the demonstration on beneficiaries, providers, and the Medicare program. We are addressing the five evaluation areas using several sources of qualitative and quantitative data. Data sources include site visits and telephone discussions with key demonstration participants, focus groups, a review of documentation, surveys of beneficiaries and providers, bid analysis, and claims analysis. For many analyses, we are using an external comparison group composed of Medicare beneficiaries from Brevard County, Florida. Brevard County was chosen as the comparison county because it closely resembles Polk County in several key characteristics.

To date, we have conducted baseline surveys of Medicare beneficiaries in Polk and Brevard Counties prior to the start of the demonstration; analyzed bidding results and estimated potential reductions in Medicare allowed charges; and conducted a series of site visits to Polk County where we interviewed beneficiaries, DME suppliers, referral agents who refer beneficiaries to suppliers, and the demonstration Ombudsman. We also conducted a site visit to Columbia, South Carolina, where we interviewed staff of Palmetto Government Benefits Administrators (GBA), HCFA's demonstration contractor. Later in the evaluation, we will conduct follow-up surveys of beneficiaries and a survey of suppliers, analyze utilization claims and expenditures data, and make additional site visits to Polk County.

ES.2 Medicare Expenditures

Medicare allowed charges equal the product of price times the volume of utilization, summed across procedures. By comparing the demonstration prices to the Florida fee schedule that would have been in effect in the absence of the demonstration, we can calculate the demonstration's impact on prices. We do not yet have sufficient claims data to estimate the demonstration's impact on utilization. However, if we assume that utilization remains constant, we can estimate annual allowed charges. The key findings in this section are as follows:

- Demonstration prices are lower than the existing Florida fee schedule for most items in every product category except surgical dressings. Demonstration prices are lower for

all 15 oxygen items, 28 of 31 hospital beds and accessories items, 22 of 24 enteral nutrition items, and 37 of 40 urological supplies. For surgical dressings, the demonstration price was higher for 56 of 62 items.

- Assuming that utilization remains constant at 1998 levels, we estimate that the demonstration will reduce annual allowed charges in Polk County by nearly $1.3 million, or about 17 percent. Medicare expenditures (defined as allowed charges less copayments and deductibles) will fall by over $1 million annually, and beneficiary payments will fall by over $250,000 annually.

- Estimated annual allowed charges will fall by 16.4 percent for oxygen supplies, 29.4 percent for hospital beds and accessories, 15.8 percent for enteral nutrition, and 18 percent for urological supplies. Estimated annual allowed charges for surgical dressings will rise by 10.2 percent.

- The estimated increase in allowed charges for surgical dressings stems from the higher prices for surgical dressings in the competitively bid fee schedule compared to the Florida fee schedule. Our analysis suggests the higher prices were an unintended consequence of the weighting mechanism used to calculate each supplier's composite bid. An alternative weighting mechanism based on volume is unlikely to have this unexpected impact on bid prices and will be used in HCFA's future bidding competitions under the demonstration.

ES.3 Beneficiary Access

Access can be defined as beneficiaries' ability to locate and use, without undue burden, the services and products that are covered by the Medicare program. Competitive bidding reduces the number of approved suppliers in Polk County. Approved suppliers could adapt to the potential for increased market share by advertising, opening new locations to fill in geographic gaps left by unapproved suppliers, or improving service, thereby increasing beneficiary access. Or they may respond to lower prices by offering lower quality products, delaying routine maintenance, or employing fewer service technicians and customer service representatives, thereby increasing the need for service calls, extending waiting times, and decreasing access. It is important to monitor the demonstration's effect on beneficiary access to evaluate whether competitive bidding affects beneficiaries' ability to obtain needed products and services.

The key findings in this section are as follows:

- Results from the baseline beneficiary survey indicate that access to DMEPOS was very good before the demonstration began.

- The demonstration design includes a number of features that promote beneficiary access.

- Twelve of the 16 demonstration suppliers agreed to serve all of Polk County. Thus, beneficiaries throughout the county can choose from a fairly wide selection of providers.

- During the transition to demonstration prices, there were no substantial barriers to access. This result is related to the transition policies for oxygen, hospital beds, and enteral nutrition, as well as nondemonstration suppliers' willingness to accept demonstration prices and continue serving their patients.
- Through our latest site visits in May 2000, no systematic problems in beneficiary access had materialized.
- *It is premature to evaluate the long-term effects of the demonstration on access.*

ES.4 Quality and Product Selection

If competitive bidding results in pressure on profit margins, then suppliers may attempt to restore profits by supplying less expensive and possibly lower quality products and services. Lower quality may be manifested in a number of ways; for example, by offering lower-quality products, postponing preventive maintenance, delaying service calls, limiting product selection, or reducing inventory to the point that time needed to fill orders is increased. Consequently, our approach has been to evaluate the potential effect of the demonstration on the quality of products and services by obtaining information directly from Medicare beneficiaries, beneficiary organizations, referral agents, and suppliers.

The key findings in this section are as follows:

- Results from the baseline beneficiary survey indicate that the quality of services and equipment that beneficiaries received prior to the demonstration was very good.
- The demonstration design includes a number of features that promote quality.
- There have been no systematic reports of substantial changes in the quality of services or equipment provided to beneficiaries under the demonstration. A few referral agents tried more than one demonstration supplier before finding a supplier they were satisfied with, but this appears to have been a transitory problem. If referral agents were not satisfied with the initial demonstration supplier, they switched to another demonstration supplier that provided satisfactory service and quality.
- Many of the demonstration suppliers report that they underbid on urological supplies. This resulted in a demonstration reimbursement schedule that sometimes does not cover the cost of purchasing certain items.
- We have observed no changes in product selection in the oxygen, hospital beds, and enteral nutrition product categories. Product selection may have improved in the surgical dressings category. The effects of the demonstration on product selection in the urological supplies category are unclear at this time.
- It is premature to evaluate the long-term effects of the demonstration on quality and product selection.

ES.5 Competitiveness of the Market

The process of selecting winners may substantially reduce the number of suppliers that serve the Polk County market. In order for the second round of bidding to be successful, there must be a sufficient number of bidders left in the market to induce competitive bids. Suppliers are also keenly interested in the demonstration's impact on competition. To evaluate the impact of the demonstration on the competitiveness of the market, we analyzed the size and number of suppliers serving Polk County prior to the demonstration, the size and number of bidding suppliers, bidding strategies, and strategies of winning bidders. We also examined industry changes such as acquisitions and bankruptcies that have occurred since the demonstration started. Finally, we interviewed suppliers about their experience with and concerns about the demonstration to date.

The key findings in this section are as follows:

- A total of 30 suppliers submitted bids in at least one of the product categories. Sixteen suppliers, both large and small firms, were selected as winners. The most common winning strategy was to vary the percentage discount across most procedures in a product category.

- Few suppliers adopted a bidding strategy that lowered prices for all items by the same percentage, relative to the existing fee schedules. Instead, most bidders cut prices for individual items by varying percentages. Indirectly, this result suggests that relative prices for DMEPOS are not accurately reflected in the existing Florida fee schedule.

- A nondemonstration supplier has acquired two demonstration suppliers. It is unclear whether these acquisitions are directly related to the demonstration. Demonstration suppliers were concerned about the ability of nondemonstration suppliers to obtain demonstration status through acquisitions.

- The parent companies of one nondemonstration supplier and one demonstration supplier have filed for bankruptcy. Another demonstration supplier has also filed for bankruptcy protection. These events do not appear to be directly related to the demonstration, and the suppliers continue to supply the demonstration site.

- Increases in volume for demonstration suppliers were less than suppliers expected, partially because expectations may have been too high, and partially because many nondemonstration suppliers chose to continue serving existing patients under the demonstration's transition policies. HCFA should stress in future demonstrations that volume is not guaranteed and present information on volume effects for demonstration suppliers based on the Polk County experience.

- Our analysis in the access and quality sections of the evaluation suggests that demonstration suppliers will still need to compete on the basis of service and quality to attract new patients. Referral agents select suppliers on the basis of these characteristics. Some referral agents have tried new suppliers as a result of the demonstration; if the initial demonstration supplier did not provide satisfactory service and quality, the referral agents switched to another demonstration supplier.

- Demonstration suppliers were concerned about nondemonstration suppliers serving as brokers by continuing to take referrals from referral agents and then referring the patients to a demonstration supplier of their choosing. This practice, while not in violation of the demonstration rules, may not be positive for beneficiaries and has been addressed by the Ombudsman.

- Demonstration suppliers were concerned about demonstration suppliers using nondemonstration suppliers as subcontractors. While subcontracting is permitted under the rules of the demonstration, it does not appear to be a common practice. The level of subcontracting has been limited in the next demonstration site.

ES.6 Reimbursement System

In the first year of the evaluation, we have devoted considerable effort to understanding and documenting the *process* of developing the competitive bidding reimbursement system. We considered such issues as stakeholder education, bid solicitation, evaluation of bids, claims processing, and supplier monitoring. Detailed documentation of the process will assist HCFA in replicating the demonstration as well as determining what aspects of the demonstration were most successful and what improvements might be made.

The key findings in this section are as follows:

- Competitive bidding can be successfully implemented.

- HCFA and its contractor exerted major efforts to educate beneficiaries, suppliers, and referral agents about the demonstration.

- The information included about the demonstration in the Request for Bids (RFB) and Bidders Conference was useful to suppliers.

- The bid evaluation process did not simply focus on price; supplier capacity and quality were carefully considered during this process. The demonstration contractor has proposed methods for streamlining the bid evaluation process.

- Demonstration claims are being processed smoothly.

- The presence of an on-site Ombudsman has greatly facilitated implementation of the demonstration.

ES.7 Summary and Conclusions

Based on 9 months of operation, the DMEPOS Competitive Bidding Demonstration shows promise in meeting its objectives. Competitive bidding has lowered the prices paid by Medicare. Because we do not yet have data on utilization, we cannot definitively conclude that total DMEPOS allowed charges (the product of price times utilization) will fall. However, if utilization remains constant, we estimate that Medicare allowed charges for demonstration products will fall by nearly $1.3 million annually, a reduction of 17 percent.

The demonstration has also shown that HCFA can design, implement, and operate a reimbursement system that uses competitive bidding. HCFA was able to notify stakeholders about the demonstration and provide educational materials to interested parties. HCFA was also able to solicit and evaluate bids and select demonstration suppliers. The administrative claims system was modified to incorporate competitive bidding, and demonstration claims are being processed smoothly. Aided by the presence of an on-site Ombudsman, HCFA appears to be monitoring the demonstration successfully.

However, important evaluation issues remain unresolved. Because the demonstration is still relatively new, it is not yet possible to evaluate the full effects of the demonstration on beneficiary access, quality and product selection, and competitiveness of the market. To date, we have not observed a systematic impact of the demonstration on beneficiary access or quality and product selection. It is premature to evaluate whether the demonstration will have negative or positive impacts on access and quality in the long run. Based on our experience to date, quality problems are most likely to occur in the urological supplies product category, and we will monitor that product category carefully. It is also premature to evaluate whether the demonstration will have long-run impacts on market competitiveness in Polk County. In the short run, the demonstration attracted numerous bidders, and demonstration suppliers appear to be competing on the basis of quality and service to attract and maintain patients. However, the long-run effects on competition will only become apparent after a year or more's experience with the demonstration.

Given these unresolved issues, it is premature to declare that competitive bidding is either an appropriate or an inappropriate reimbursement mechanism for DMEPOS. Our evaluation will continue throughout the duration of the demonstration in Polk County, and we will collect extensive information on the demonstration's impact over time. We will also evaluate the impact of competitive bidding in San Antonio, Texas, which was recently announced as the second demonstration site. We will issue the Year 2 Annual Evaluation Report and Report to Congress 1 year from now, and the Final Evaluation Report and Report to Congress after the demonstration concludes.

SECTION 1
BACKGROUND AND METHODS

1.1 Purpose

The Balanced Budget Act of 1997 (BBA 97) (U.S. Congress, 1997) authorizes the Secretary of the Department of Health and Human Services to implement up to five demonstration projects of competitive bidding for Medicare Part B items and services, except physician services. At least one of these demonstration projects must include oxygen and oxygen services. On the basis of this authority, the Health Care Financing Administration (HCFA) planned and implemented the DMEPOS Competitive Bidding Demonstration to test the use of competitive bidding to set prices for durable medical equipment (DME) and prosthetics, orthotics, and supplies (POS). Bidding in the first demonstration site, Polk County, Florida, was conducted in early 1999, and the resulting prices took effect on October 1, 1999.

BBA 97 also requires that the demonstrations be evaluated for their impact on Medicare program payments, access, diversity of product selection, and quality. The purpose of this report is to describe the results to date of the evaluation of the DMEPOS Competitive Bidding Demonstration. We evaluate the impact of the demonstration on

- Medicare expenditures,
- beneficiary access to care,
- quality of care (including diversity of product selection),
- competitiveness of the market, and
- the reimbursement system.

This report focuses on the evaluation of the first demonstration site, Polk County, Florida. Three counties in the San Antonio, Texas metropolitan statistical area (MSA) have been selected for a second site for the DMEPOS Competitive Bidding Demonstration, and the bidding process has begun; however, it is too early to report evaluation results for the San Antonio demonstration site. We emphasize that the demonstration in Polk County will continue until September 30, 2002, and our evaluation will continue throughout this period. This evaluation report covers the period leading up to the demonstration and the first 9 of the 36 months that the demonstration prices will be in effect. Although we have learned a number of lessons from the evaluation so far, it is premature to make final conclusions about the long-term impact of the demonstration on

many of the evaluation issues. We will repeat this caution throughout our report, as we identify evaluation activities that will continue for the duration of the demonstration.

In the remainder of this section, we provide an overview of the key features of the demonstration design; provide a brief history of the demonstration to date; and discuss links between the major evaluation issues, our evaluation approach, and the methods and data we use to perform the evaluation. Sections 2 through 6 describe the evaluation results for Medicare expenditures, access, quality, competitiveness of the market, and the reimbursement system, respectively. In each of these sections, we present results, identify unresolved issues, and discuss ongoing evaluation activities. In Section 7, we summarize the key conclusions across evaluation areas and make policy recommendations on the basis of these conclusions.

1.2 Demonstration Overview

The Polk County DMEPOS Competitive Bidding Demonstration is scheduled to last for 3 years (see Table 1-1). It will have two rounds of bidding. The first round resulted in a fee schedule that will be in effect for 2 years, and the second round fee schedule based on the bidding will be in effect for 1 year. Each of the five product categories included in the demonstration (oxygen supplies and equipment, hospital beds and accessories, enteral nutrition, urological supplies, and surgical dressings) is considered a separate competition, so suppliers are required to submit separate bids for each product category in which they wish to compete.

Demonstration suppliers are selected using a four-stage bid evaluation process. First, those bidders that meet the demonstration's eligibility and quality standards are identified. Second, a composite bid for each bidder is calculated from their bid submissions, and a cutoff composite price is chosen. Only those bids that are at or below this cutoff will be considered for further evaluation. In setting the cutoff, the supply capacity and geographic coverage provided by the bidders are considered. Finally, references from referral agents (hospital discharge planners, social workers, physician office staff, and home health workers who refer patients to DMEPOS suppliers) are evaluated and on-site inspections are made to verify that the remaining bidders meet general and product-specific quality and service requirements.

At the end of the bid evaluation process, multiple demonstration suppliers are selected in each category. Demonstration suppliers are not guaranteed to receive a set number of Medicare patients. These provisions of the demonstration are designed to promote competition between demonstration suppliers for patients. This competition, it is hoped, will encourage suppliers to maintain quality and service levels during the demonstration.

Table 1-1. Demonstration Timeline: Polk County, Florida Site

Demonstration Event	Date
BBA 97 Passed	August 5, 1997
Site Announcement	May 29, 1998
Request for Bids	February 11, 1999
Bidders Conference	February 23, 1999
Bid Submission Deadline	March 29, 1999
Bid Evaluation	March 29–July 12, 1999
Winners Announced	August 13, 1999
Supplier Directory Distributed	September 13, 1999
New Prices Take Effect	October 1, 1999
Second Round of Bidding	April 2001
Second Round Prices Take Effect	October 1, 2001
Demonstration Ends	September 30, 2002

The new fee schedule is determined from the demonstration suppliers' bids. The demonstration suppliers will be reimbursed according to this new fee schedule, minus the 20 percent beneficiary copayment and any applicable deductibles.

Several transition policies cover beneficiary/supplier relationships that existed prior to the demonstration. Beneficiaries may continue to receive oxygen supplies from their original supplier, regardless of whether the supplier is a demonstration supplier. However, payments will be made according to the new demonstration fee schedule. Those beneficiaries that have preexisting rental agreements for enteral pumps and hospital beds may continue to use their current supplier, and these suppliers will be paid the preexisting fees for the duration of the rental period. If beneficiaries use a nondemonstration supplier of urological supplies or surgical dressings in error, then Medicare will cover the first 2 months of claims while the beneficiary locates a new supplier.

Special policies cover reimbursement for demonstration products that are covered by Part B when Medicare beneficiaries reside in skilled nursing facilities (SNFs). SNFs are allowed to continue existing relationships with nondemonstration suppliers, but payments are made on the basis of the demonstration fee schedule. In order to implement these policies, SNFs were asked to provide information about their DME suppliers.

The demonstration includes quality standards for demonstration suppliers, and these standards exceed those set under the National Supplier Clearinghouse program. Also, HCFA

designated an Ombudsman to receive, record, and respond to complaints from beneficiaries, physicians, suppliers, and other interested parties. Palmetto Government Benefits Administrators (Palmetto GBA) is implementing the demonstration under contract and in collaboration with HCFA.

1.3 History of the Demonstration

1.3.1 Planning Stages

HCFA has long been interested in using competitive bidding to set Medicare fee schedules. Developmental work on competitive bidding demonstrations for clinical laboratory services and DME began in the mid-1980s. However, because of a congressional funding moratorium, the projects were not implemented at that time. HCFA resumed work on the clinical laboratory and DME competitive bidding demonstrations in 1995.

Interest in competitive bidding has intensified in recent years as continued growth in Medicare spending has forced HCFA, the President, and Congress to seek additional innovative means to control program spending. This interest culminated in provisions addressing competitive bidding in the BBA 97. BBA 97 authorizes the Secretary of Health and Human Services to conduct up to five demonstration projects of competitive bidding for Part B items and services, except physician services. The key demonstration provisions, presented in Section 4319 of the BBA 97, are as follows:

- The Secretary will implement up to five demonstration projects under which competitive acquisition areas will be established for contract award purposes.
- Each demonstration shall be conducted in not more than three competitive acquisition areas.
- Competitive acquisition areas shall be all or part of an MSA. Criteria for selecting competitive acquisition areas include availability and accessibility of services and probability of savings from the demonstration.
- To receive a contract, providers must meet quality standards.
- The amount to be paid under a contract must be less than what would have been paid in the absence of a contract.
- The number of providers awarded contracts may be limited to the number needed to meet projected demand.
- The demonstrations shall be evaluated for their impact on Medicare program payments, access, diversity of product selection, and quality.
- A demonstration project may be expanded if the project reduces federal spending and does not reduce program access, diversity of product selection, or quality.

- The demonstration may include any Part B service except physician services. At least one demonstration project will include oxygen and oxygen equipment.
- The demonstrations—which will be operated over a 3-year period—must be completed by December 31, 2002.

1.3.2 Site Announcement

On May 29, 1998, Polk County, Florida—an MSA that includes the cities of Lakeland and Winter Haven—was announced as the first site for the DMEPOS Competitive Bidding Demonstration. Polk County was selected because it has a relatively small population but a large proportion of Medicare beneficiaries, high expenditures for DMEPOS per beneficiary, and a large number of suppliers servicing the area. In 1997, 4,500 beneficiaries received about $6.6 million in Medicare reimbursement for the products included in the demonstration. Nationally, Medicare paid about $3 billion for the items included in the demonstration. The following DMEPOS product groups were included in the demonstration:

- oxygen supplies and equipment,
- hospital beds and accessories,
- enteral nutrition,
- urological supplies, and
- surgical dressings.

1.3.3 Request for Bids

On February 11, 1999, HCFA sent a Request for Bids (RFB) to every supplier that had submitted claims to Medicare during the previous year for items included in the demonstration and for beneficiaries residing in the demonstration area. HCFA also published notices of the demonstration in national trade journals and in *Commerce Business Daily*, a publication that lists upcoming government procurements.

1.3.4 Lawsuit

Medi-Health Care Inc., C&C Homecare, and Florida Association of Medical Equipment Dealers (collectively "FAMED") filed an injunction against the commissioner of the Social Security Administration on February 4, 1999. FAMED alleged that, in developing the competitive demonstration project, HCFA had violated the Federal Advisory Committee Act (FACA), which ensures public access and participation in advisory committee meetings and makes available to the public any documentation from the meeting. HCFA had convened a National Technical

Expert Panel (NTEP) to gather feedback regarding the design of the competitive bidding project and to enhance communication with interested members of the public. The panel met three times and was not expected to, and did not, issue a report. FAMED claimed that they were unable to participate in the NTEP because they did not receive proper notice. Had they been able to participate, they would have hoped to influence the structure of the demonstration and afford themselves a better chance to bid successfully. FAMED asked that HCFA be prevented from using any of the recommendations from the NTEP and that the demonstration project be delayed until the FACA requirements were met. However, the case was dismissed, and the United States Court of Appeals, Eleventh Circuit, denied FAMED's appeal on November 9, 1999 (194 F.3d 1227), stating that FAMED was only able to allege speculative damages and a tenuous causal connection of damages to the alleged violations. The lawsuit may have caused uncertainty among suppliers about whether the demonstration would proceed as scheduled. Ultimately, however, the lawsuit did not delay the demonstration.

1.3.5 Bidding Conference and Bidding

HCFA held a Bidders Conference in Lakeland, Florida, on February 23, 1999, to describe the bidding process, explain the operational policies of the demonstration, share information on bidding strategies, and answer questions from prospective bidders. Prospective bidders were also given an opportunity to submit follow-up questions to HCFA after the conference. About 100 persons attended the Bidders Conference.

1.3.6 Selection of Winners

Bids were due on March 29, 1999. Thirty different suppliers submitted a total of 73 bids across five different product categories. The demonstration contractor, Palmetto GBA, and HCFA reviewed these bids for both quality and value. They selected 16 suppliers, each to provide products in at least one product category, for participation in the demonstration. Results of the bidding, including the preliminary number of suppliers in each category and estimated savings, were announced in July 1999. HCFA released a final list of demonstration suppliers in August 1999 (Table 1-2), after reviewing appeals and obtaining signed contracts from suppliers. The demonstration Supplier Directory, which provides each demonstration supplier's contact information and service area, was distributed in September 1999.

Based on the bids of the demonstration suppliers, new reimbursement rates were established for each product category included in the demonstration. The new rates went into effect on October 1, 1999.

Table 1-2. Demonstration Suppliers by Product Category

Supplier	Oxygen Supplies	Hospital Beds and Accessories	Enteral Nutrition	Urological Supplies	Surgical Dressings
American Home Patient	X	X	X		
Comprehensive Health Care	X	X	X	X	X
Encore Respiratory, Inc.	X				
Global Medical, Inc.	X	X	X		
Health Care Diagnostics	X	X	X		
Home Care Medical Services	X	X	X		
Home Care Supply	X				
Housecall Medical Equipment	X	X			
Jernigan Healthcare				X	X
Med-Services Network	X				
Medi-Healthcare	X	X	X	X	
Medical Technology Solutions					X
Medline Healthcare			X	X	X
Respitek Medical Services	X	X			
Sun Factors, Inc.	X	X		X	
VNA Homecare, Inc.	X	X			
Total Number of Suppliers	13	10	7	5	4

1.3.7 Future Events

The second round of bidding for Polk County, Florida is scheduled to take place in April 2001, with the new prices going into effect on October 1, 2001. The Polk County demonstration will end on September 30, 2002.

In March 2000, HCFA announced that the second DMEPOS demonstration site will be San Antonio, Texas. This demonstration will cover

- oxygen supplies,
- manual wheelchairs,
- hospital beds,
- non-customized orthotics, and
- nebulizer inhalation drugs.

According to a HCFA news release, San Antonio was selected for the demonstration "because it has enough beneficiaries and suppliers to create the potential for significant savings" (<www.hcfa.gov/ord/dmepr300.htm>). San Antonio has approximately 112,000 Medicare beneficiaries in the three county area included in the demonstration. In 1998, Medicare paid an average of $287 per area beneficiary for medical equipment and supplies. Between 15 and 48 suppliers provided significant services to Medicare beneficiaries in each of the five product areas included in the demonstration. Bidding in San Antonio occurred in the spring of 2000, with new prices scheduled to take effect in February 2001.

1.4 Evaluation Methods and Data

This section describes the methods and data we are using to evaluate the five major evaluation areas (Medicare expenditures, access, quality, competitiveness of the market, and the reimbursement system). This evaluation requires extensive descriptive and explanatory analyses to evaluate both the effectiveness of the implementation *process* and the *impact* of the demonstration on beneficiaries, providers, and the Medicare program. We address the five evaluation areas using several sources of qualitative and quantitative data. Data sources include site visits and telephone discussions with key demonstration participants, focus groups, a review of documentation, surveys of beneficiaries and providers, bid analysis, and claims analysis.

For many analyses, we are using an external comparison group composed of Medicare beneficiaries from Brevard County, Florida. Brevard County was chosen as the comparison county because it closely resembles Polk County in several key characteristics:

- location in Florida
- a single-county MSA
- number of Medicare beneficiaries
- number of DME suppliers
- managed care penetration

Our primary focus in the evaluation is on Medicare, Medicare beneficiaries, and Medicare suppliers. It is possible that the demonstration will affect non-Medicare beneficiaries or payers. When those effects are clearly evident, we will report them, but such effects will not be a major focus of our evaluation. Below, we discuss our approach for evaluating the five major evaluation areas.

1.4.1 Medicare Expenditures

Our evaluation of Medicare expenditures focuses on price, utilization, and overall expenditures (the product of price and utilization). The evaluation is addressing the following primary questions:

- Does competitive bidding reduce the price Medicare pays for DMEPOS?
- Does utilization of DMEPOS rise, fall, or remain the same?
- Do overall Medicare expenditures for DMEPOS fall?

Question 1 is critical to the overall evaluation of the demonstration project because proponents of competitive bidding expect that competitive bidding will reduce prices relative to the current Medicare fee schedule. If this expectation is proven incorrect, much of the motivation for using competitive bidding for DMEPOS will be lost. Conceptually, competitive bidding will have a good chance of reducing Medicare fees if current fees are higher than supplier costs. In the primary analysis of price, we compare the new price schedule generated by competitive bidding to the DMEPOS fee schedule that would otherwise hold in Florida. For secondary analyses, we will also compare the new fee schedule to the prices paid by the Veterans Administration (VA) for demonstration products.

For Question 2, the probable effects of competitive bidding on utilization are less clear, because utilization is determined by the interplay between the demand for and the supply of DMEPOS. To the extent that lower Medicare prices reduce beneficiary out-of-pocket costs, beneficiaries will tend to increase the quantity demanded. Conversely, suppliers tend to reduce the quantity supplied when prices fall, at least according to standard economic theory. On the other hand, the theory of supplier-induced demand suggests that suppliers will try to exploit their informational advantages to induce demand if they suddenly face lower prices. Although many economists have criticized the theoretical underpinnings of supplier-induced demand, some economists and many other researchers find this theory intuitively appealing. It is not clear to what extent, if any, DMEPOS suppliers can induce demand. The demonstration is also designed to weed out fraudulent suppliers, which could by itself reduce utilization. Of course, all of these conjectures about utilization could be rendered moot by the nature of DMEPOS: to the extent that the demand for DMEPOS is driven by medical necessity, rather than price, there may be relatively little effect on utilization. In the analysis of utilization, we will use Medicare National Claims History (NCH) data to compare utilization in the Polk County demonstration site to a comparison group of Medicare patients in Brevard County.

For Question 3, the overall effect of competitive bidding for DMEPOS on utilization depends on competitive bidding's effect on both price and utilization. If price falls and utilization either falls or remains the same, Medicare expenditures will definitely fall. If price falls and utilization rises, the overall effect on expenditures will depend on the relative magnitudes of the two changes. If the percentage reduction in price is larger than the percentage increase in utilization, overall expenditures will fall. Proponents of competitive bidding expect that price reductions will dominate, but this expectation must be tested empirically. Data from the price and utilization analyses will be combined to evaluate the overall effect of the demonstration on Medicare expenditures.

Table 1-3 summarizes the analyses to be performed. In the table, "pre-intervention" and "post-intervention" refer to data for the periods before and after the demonstration fee schedule took effect on October 1, 1999. Results of the analyses will be presented in Annual Evaluation Reports; the last column of the table indicates the report in which results are expected to be presented.

1.4.2 Beneficiary Access

Beneficiary access to and quality of DMEPOS services are interrelated, and both may change in response to competitive bidding. The impact of competitive bidding on access and quality is potentially very complex. The purpose of the evaluation is to determine which outcomes occur and assess their implications for beneficiaries and suppliers.

From a conceptual standpoint, the demonstration's effects on access and quality are not clear. The competitive bidding rules have reduced the number of approved suppliers providing DME to Medicare beneficiaries in Polk County. Further, if demand for services is constant (because, for example, there is no change in beneficiary health status and DME technology), competitive bidding will almost certainly reduce the total revenue available to suppliers and shift the remaining revenue to fewer suppliers. Thus, we would expect some suppliers who do not bid or whose bids are not accepted to be driven out of the local market. Approved suppliers might experience increased profits from increased volume and share of total revenue or decreased profits from smaller profit margins. Approved suppliers could adapt to the potential for increased market share by advertising, opening new locations to fill in the geographic gaps left by suppliers who are not approved, and improving service, thereby increasing beneficiary access. Alternatively, they might retain their initial configuration and marketing behavior and attempt to restore profit margins by offering lower-quality products, delaying routine maintenance, or

Table 1-3. Evaluation Approach: Medicare Expenditures

Issue	Method	Data Source	Pre-Intervention	Post-Intervention	Comparison Site	Evaluation Report[a]
Price	Comparative analysis	Bids; old and new fee schedules; VA fees	✓	✓		1, 3
Quantity	Claims analysis	National Claims History	✓	✓	✓	2–3
Total expenditures	Claims analysis	National Claims History	✓	✓	✓	2–3

[a] Report 1: First Annual Evaluation Report. Report 2: Second Annual Evaluation Report. Report 3: Final Evaluation Report.

employing fewer mechanics and customer service representatives, thereby increasing the need for service calls, extending the waiting time for service, and decreasing access and quality. At the same time, the demonstration also includes measures to maintain access and quality.

The evaluation addresses the following principal access question: Does competitive bidding reduce the ability of beneficiaries to receive the DMEPOS services they need, when they need them? We are performing several analyses to address this question. First, we have examined whether the number of DME suppliers decreases in the demonstration site. Second, we are collecting and analyzing data on perceived access from beneficiaries, suppliers, and referral agents. Third, as claims data become available, we will examine realized access by testing whether utilization changes in the demonstration site. Finally, we will test whether beneficiary out-of-pocket expenses are affected by the demonstration. Table 1-4 summarizes the analyses to be performed.

1.4.3 Quality and Product Selection

If competitive bidding results in pressure on profit margins (an empirical question to be determined as part of the evaluation), then suppliers may attempt to restore profits by lowering quality and therefore their cost of goods and services. Lower quality may be manifested in many ways: for example, by offering lower-quality products, postponing preventive maintenance, delaying service calls, or reducing inventory to the point that time needed to fill orders increases, or even, at the extreme, committing fraud and abuse. On the other hand, demonstration suppliers will still have to compete among themselves to attract new patients, giving suppliers incentives to maintain quality and offer a wide product selection. In addition, quality was one of the criteria used to select demonstration suppliers.

Our analysis of demonstration effects on quality uses both the beneficiary and the supplier as the unit of analysis. Beneficiary-level and supplier-level analyses will be based on both qualitative and quantitative data.

The evaluation addresses the following principal quality questions:

- Does the demonstration reduce, maintain, or increase the quality of equipment provided to beneficiaries?
- Does the demonstration reduce, maintain, or increase the quality of service provided to beneficiaries?
- Does the demonstration reduce the product selection offered to beneficiaries?

Table 1-4. Evaluation Approach: Beneficiary Access

Issue	Method	Data Source	Pre-Intervention	Post-Intervention	Comparison Site	Evaluation Report[a]
Number of suppliers	Claims analysis	National Claims History	✓	✓	✓	2–3
Beneficiary perceptions	Survey of users	Beneficiaries	✓	✓	✓	1, 2
Referral agent perceptions	Focus groups	Physicians and referral agents		✓		1, 2
Supplier perceptions	Focus groups	Suppliers		✓		1, 2
	Survey	Suppliers		✓	✓	2
Realized access	Claims analysis	National Claims History, beneficiary surveys	✓	✓	✓	2–3
	Site visit	Ombudsman		✓		1–3
Out-of-pocket expenses	Claims analysis	National Claims History, Durable Medical Equipment Regional Carrier	✓	✓	✓	2–3

[a] Report 1: First Annual Evaluation Report. Report 2: Second Annual Evaluation Report. Report 3: Final Evaluation Report.

To answer these questions, we will analyze

- beneficiary assessments of quality,
- supplier assessments of quality,
- referral agent assessments of quality,
- product selection, and
- fraud and abuse data.

These analyses are summarized in Table 1-5.

1.4.4 Competitiveness of the Market

The process of selecting winners may substantially reduce the number of suppliers that serve the Polk County market. This has important implications for the health of the DMEPOS market in Florida. A sufficient number of bidders must be left in the market for both quality and price competition benefits to be realized in the future. Obviously, reductions in the number of suppliers also have special relevance to suppliers. Thus, the analysis of industry competitiveness is an important component of the evaluation of the feasibility of competitive bidding. Our analysis focuses on the following questions:

- Does competitive bidding significantly reduce the number of suppliers serving the market?
- Are small businesses differentially affected by the demonstration?
- Do winning bidders significantly increase market share?
- Has the demonstration adversely impacted future competition in the market?

To address these issues, we use econometric analysis where appropriate; however, some questions related to competition can only be addressed in a case-study approach. We are conducting a comprehensive qualitative and quantitative evaluation using pre- and post-intervention claims data, data collected from a supplier survey, data collected in focus groups of referral agents and suppliers conducted during site visits, and discussions with other payers of DMEPOS.

These data will allow us to characterize the supplier market in both the pre- and post-intervention periods and evaluate what changes have occurred in the local market. Specifically, we will make pre- and post-intervention comparisons of several measures of market competition, including

- the number of suppliers providing each product category;
- the number of suppliers who are local or from beyond the market;

Table 1-5. Evaluation Approach: Quality and Product Selection

Issue	Method	Data Source	Pre-Intervention	Post-Intervention	Comparison Site	Evaluation Report[a]
Beneficiary perceptions	Survey of users	Beneficiaries	✓	✓	✓	1, 2
Supplier perceptions	Survey	Suppliers		✓		2
	Focus groups	Suppliers		✓		1, 2
Referral agent perceptions	Focus groups	Physicians and referral agents		✓		1, 2
Complaints	Report of complaints	Ombudsman reports		✓		1–3
Product selection	Qualitative	Supplier product lists	✓	✓	✓	2
	Focus groups	Suppliers		✓		1, 2
	Survey	Suppliers		✓	✓	2
Fraud through denied claims	Claims analysis, interviews	Durable Medical Equipment Regional Carrier		✓		2–3

[a] Report 1: First Annual Evaluation Report. Report 2: Second Annual Evaluation Report. Report 3: Final Evaluation Report.

- the share of demonstration DMEPOS of the suppliers' total business;
- the Herfindahl Index, a measure of market concentration, for each product category; and
- relative market shares of small, medium, and large suppliers by product category.

We are also analyzing the reasons behind changes in these variables by evaluating the following in both the first and second round of bidding:

- entry and exit decisions for the Polk County market;
- bid decisions;
- the effect of winning the contract; and
- financial status by product type and supplier size, origin, and breadth of products.

The key industry competitiveness analyses are summarized in Table 1-6.

1.4.5 Reimbursement System

Our evaluation of the reimbursement system focuses on the process of the competitive bidding demonstration itself, rather than on the outcomes (i.e., cost savings, access, and quality) covered in other task areas. The process of the demonstration is a major focus of the evaluation because one of the objectives of the government's policy is to achieve a fair and administratively feasible reimbursement system. Information is being solicited from beneficiaries, suppliers, physicians, referral sources, and government officials to determine whether the demonstration does, in fact, meet this government objective.

Five areas (or phases) are being covered under the evaluation of the reimbursement system: publicity and solicitation, management of the bidding process, selection of winners, administration and monitoring, and public education. Methods used to evaluate the reimbursement system include site visits, key informant interviews, focus groups, surveys, and review of documentation. The following general evaluation questions will be addressed:

- What parts of the process worked? What did not work?
- What problems or barriers were encountered during implementation? How were they resolved?
- What were facilitating factors? Why?
- How can the competitive bidding system be improved in subsequent years?

Table 1-7 summarizes the methods and data sources we are using.

Table 1-6. Evaluation Approach: Competitiveness of the Market

Issue	Method	Data Source	Pre-Intervention	Post-Intervention	Comparison Site	Evaluation Report[a]
Market concentration	Herfindahl Index	Claims	✓	✓	✓	2–3
Number of bidders per round	Bid analysis	Bids		✓		1, 3
Supplier strategies	Site visits	Suppliers		✓		1, 3
Supplier perceptions	Survey, site visits	Suppliers		✓		1, 2, 3
Cost structure	Survey, bid analysis	Suppliers, bids		✓		1, 2, 3

[a] Report 1: First Annual Evaluation Report. Report 2: Second Annual Evaluation Report. Report 3: Final Evaluation Report.

Table 1-7. Evaluation Approach: Reimbursement System

Issue	Method	Data Source	Pre-Intervention	Post-Intervention	Comparison Site	Evaluation Report[a]
Reimbursement system	Survey, site visits	Suppliers		✓		1, 2
	Focus groups	Physicians and referral agents		✓		1, 2
	Site visit	Durable Medical Equipment Regional Carrier		✓		1
	Site visit	Ombudsman		✓		1–3

[a] Report 1: First Annual Evaluation Report. Report 2: Second Annual Evaluation Report. Report 3: Final Evaluation Report.

1.4.6 Data Collection Methods

The major data collection and analysis methods we are using in the evaluation are surveys, qualitative studies, and claims data and statistical analysis. Below, we discuss the major survey and qualitative data collection activities during the first year of the evaluation. The data analysis component of this project will involve evaluating National Claims History (NCH) and enrollment data; this component will begin 1 year after the demonstration fee schedule goes into effect.

1.4.7 Baseline Beneficiary Surveys

We fielded two beneficiary surveys: one for oxygen users and another very similar survey for other medical equipment users (hospital beds, enteral nutrition, urological supplies, and surgical dressings). Among the demonstration product categories, oxygen accounts for the majority of beneficiaries and Medicare expenditures. We used the same survey for all other equipment categories to provide enough observations for statistical analysis. The research questions that were addressed by the surveys focused on access, quality, and product selection. The initial beneficiary surveys were conducted from March through June 1999. We mailed surveys to 2,895 beneficiaries: 1,600 oxygen users and 1,295 medical equipment users. The overall response rate to the two surveys (excluding ineligible and deceased individuals) was 74 percent. The response rate for the oxygen survey was 82 percent, while the response rate for the medical equipment survey was 63 percent. The follow-up beneficiary surveys will be fielded during the fall of 2000, 1 year after the demonstration prices took effect. The data collection plan for the initial surveys is described in Appendix B; a similar design is being used for the follow-up surveys.

In addition to the follow-up beneficiary surveys, we will also conduct a survey of DME suppliers in the fall of 2000. Suppliers in both Polk and Brevard Counties will be surveyed.

1.4.8 Qualitative Studies

The qualitative studies for this project include site visits, focus groups, review of written materials, and telephone conversations with individuals involved in the demonstration, such as beneficiaries, physicians, suppliers, the demonstration contractor, and others. The main objectives of these qualitative studies are to gain an in-depth understanding of the effect the demonstration is having on beneficiaries, referral agents, and suppliers and to observe and monitor all aspects of the demonstration in a person-to-person environment.

Prior to the Polk County site visits, we contacted individuals to ask if they would be willing to participate in an interview. We briefly explained the purpose of the site visit and described the topics that we would discuss during the interview. We also explained that their participation was confidential and that we would not reveal their identity to HCFA or to any other third party.

We conducted four site visits to Polk County in the first year of the evaluation. The first site visit took place after bidding had occurred but before winners were announced. During the first visit, we interviewed both suppliers who bid and suppliers who did not bid, focusing on the bidding process and reasons for bidding or not bidding. We spoke with seven suppliers and the Ombudsman during the visit; we interviewed an eighth supplier by telephone shortly thereafter.

The second visit took place 2 months after the demonstration prices took effect. We interviewed beneficiaries and representatives of beneficiary groups, suppliers, referral agents, and the demonstration Ombudsman. The interviews with beneficiaries and referral agents focused on transition issues and the initial perceptions of the demonstration. The objective of the supplier interviews was to describe implementation of the demonstration from the supplier perspective, identify supplier planning and actions between the time winners were announced and new prices took effect, and evaluate the early effects of the demonstration on suppliers. We spoke with four suppliers, 13 referral agents and beneficiary groups, and the Ombudsman during this visit.

During the third site visit, which took place 6 months after the demonstration prices took effect, we conducted separate focus groups with demonstration suppliers and referral agents. The supplier focus group discussed implementation issues, product selection, service levels, beneficiary access, and business activity. The referral agent focus group discussed access and quality. Seven demonstration suppliers participated in the supplier focus group, and seven referral agents participated in the referral agent focus group. We also met separately with a nondemonstration supplier and the Ombudsman during this visit.

The fourth site visit took place 8 months after the demonstration prices took effect. During this visit, we met with demonstration suppliers in the urological supplies product category to discuss issues of access, quality, product selection, and pricing. We met with three of the demonstration urological suppliers and conducted telephone interviews with the remaining two demonstration suppliers in this product category.

In addition to the four Polk County site visits, we conducted one site visit to Palmetto GBA, the demonstration contractor, in Columbia, South Carolina. This site visit took place 2 months after the demonstration prices took effect. During the visit, we discussed publicity and education efforts, bid evaluation, claims processing changes, and other implementation issues. In

addition to conducting the demonstration, Palmetto GBA is the Durable Medical Equipment Regional Carrier (DMERC) for Region C, which includes Florida. In this role, Palmetto GBA is one of the four DMERCs that process Medicare DMEPOS claims.

SECTION 2
MEDICARE EXPENDITURES

2.1 Expenditures

In this section, we estimate the demonstration's impact on Medicare allowed charges and expenditures. Medicare allowed charges equal the product of price times the volume of utilization, summed across procedures. By comparing the demonstration prices to the Florida fee schedule that would have been in effect in the absence of the demonstration, we can calculate the demonstration's impact on prices. We do not yet have sufficient claims data to estimate the demonstration's impact on utilization. However, if we assume that utilization remains constant, we can estimate the effect of the demonstration on annual allowed charges. Estimated allowed charges can then be divided into Medicare expenditures (80 percent of allowed charges) and beneficiary copayments (20 percent of allowed charges).

We begin this section by comparing demonstration prices to the prices that would have been in effect under the Florida fee schedule. Using this comparison, we estimate reductions in allowed charges for the demonstration, under the assumption that utilization is constant. We then divide the reduction in allowed charges between reductions in Medicare payments and reductions in beneficiary copayments.

In interpreting the results of this estimation, several issues arose regarding the weighting mechanism used in Polk County to calculate composite prices and to set prices for individual procedures. In Appendix A, we examine these issues in detail and show that an alternative weighting mechanism based on volume may be desirable. HCFA plans to use the volume weighting mechanism in the second demonstration site. We conclude this section by discussing future analyses of utilization and Medicare expenditures.

The key findings in this section are as follows:

- Demonstration prices are lower than the existing Florida fee schedule for most items in every product category except surgical dressings. Demonstration prices are lower for all 15 oxygen items, 28 of 31 hospital beds and accessories items, 22 of 24 enteral nutrition items, and 37 of 40 urological supplies. For surgical dressings, the demonstration price was higher for 56 of 62 items.

- Assuming that utilization remains constant at 1998 levels, we estimate that the demonstration will reduce annual allowed charges in Polk County by nearly $1.3 million, or about 17 percent. Medicare expenditures (defined as allowed charges less

copayments and deductibles) will fall by over $1 million annually, and beneficiary payments will fall by over $250,000 annually.

- Estimated annual allowed charges will fall by 16.4 percent for oxygen supplies, 29.4 percent for hospital beds and accessories, 15.8 percent for enteral nutrition, and 18 percent for urological supplies. Estimated annual allowed charges for surgical dressings will rise by 10.2 percent.

- The estimated increase in allowed charges for surgical dressings stems from the higher prices for surgical dressings in the competitively bid fee schedule compared to the Florida fee schedule. Our analysis suggests the higher prices were an unintended consequence of the weighting mechanism used to calculate each supplier's composite bid. An alternative weighting mechanism based on volume is unlikely to have this unexpected impact on bid prices, and will be used in HCFA's future bidding competitions under the demonstration.

2.2 Prices

After winners had been selected, the demonstration fee schedule for individual procedures was derived based on the cutoff composite bid and winning suppliers' bids for the procedure, as follows. First, a supplier ratio was calculated by dividing the cutoff composite bid by the supplier's composite bid for each winning supplier. Note that the ratio is greater than or equal to one because the cutoff composite bid is the highest acceptable bid. Next, an adjusted bid was calculated by multiplying the supplier's bid for each product times the supplier ratio. Finally, the prices for each product were derived by averaging the adjusted bids over all winning suppliers. On average, the demonstration fee schedule allowances are greater than bid prices because the supplier ratios exceed one.

Table 2-1 compares the composite price based on the demonstration prices to the composite price based on the Florida fee schedule that would have been in effect in the absence

Table 2-1. Difference in Composite Prices Based on Demonstration Prices and the Florida Fee Schedule

	Oxygen Supplies	Hospital Beds and Accessories	Enteral Nutrition	Urological Supplies	Surgical Dressings
Composite Prices:					
Demonstration Fee Schedule	161.75	90.72	62.59	8.86	13.82
Florida Fee Schedule	195.99	129.26	86.02	11.07	15.80
Percentage Reduction: Demonstration Fees vs. Florida Fee Schedule	17.5%	29.8%	27.2%	20.0%	12.6%

of the demonstration. The composite price for the demonstration is lower in each product category. The demonstration composite price is 17.5 percent lower for oxygen supplies, 29.8 percent lower for hospital beds and accessories, 27.2 percent lower for enteral nutrition, 20 percent lower for urological supplies, and 12.6 percent lower for surgical dressings.

Tables 2-2 through 2-6 compare the demonstration fee schedule to the Florida fee schedule that would have been in effect in the absence of the demonstration. Demonstration fees are lower than the Florida fee schedule for all 15 oxygen items (Table 2-2). Demonstration prices are also lower for 28 of 31 hospital beds and accessory items (Table 2-3), 22 of 24 enteral nutrition items (Table 2-4), and 37 of 40 urological supplies (Table 2-5). For surgical dressings, the demonstration price was higher than the Florida fee schedule for 56 of 62 items (Table 2-6).

The percentage change in the demonstration price versus the fee schedule is displayed for individual procedures in Figures 2-1 through 2-5. Procedure codes come from the HCFA Common Procedure Coding System (HCPCS). Changes in the demonstration price for each product in the oxygen category are graphed in Figure 2-1. As noted above, the demonstration prices for all items in the oxygen category are lower than the fee schedule prices. The largest discounts are for stationary and portable oxygen contents (HCPCS codes E0441 through E0444), which range from about 17 percent to 33 percent. The discounts on the remaining rental items varied from 6 percent to about 17 percent.

Changes in the demonstration price for each product in the hospital beds and accessories category are graphed in Figure 2-2. The demonstration prices are discounted for all items with the exception of bed cradles for rental or purchase (HCPCS codes E0280NU, E0280RR, and E0280UE), which rose about 8 to 9 percent. The biggest discounts of 33 percent to 35 percent were obtained for full length hospital bed side rails (HCPCS codes E0310NU, E0310RR, and E0310UE). Discounts for other items ranged from about 10 percent to 30 percent.

Changes in the demonstration price for each product in the enteral nutrition category are graphed in Figure 2-3. The demonstration prices are discounted for all items with the exception of one type of used IV pole (HCPCS code E0776UEXA), which rose over 75 percent, and category VI enteral formulae (HCPCS code B4156), which rose less than 10 percent. Discounts of 25 percent to 40 percent were obtained for enteral nutrition fusion pumps with and without alarms (HCPCS codes B9000NU, B9000RR, B9000UE, B9002NU, B9002RR, and B9002UE), and a rental rate for an IV pole (EO776RRXA) fell by over 50 percent. Discounts for other items ranged from about 5 percent to 25 percent.

Changes in the demonstration price for each product in the urological supplies category are graphed in Figure 2-4. The demonstration prices are discounted for all items with the

Table 2-2. Oxygen

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
E0424RR	Stationary compressed gaseous oxygen system, rental; includes contents (per unit), regulator, flowmeter, humidifier, nebulizer, cannula mask, and tubing; 1 unit = 500 cubic ft.	$181.59	$213.11
E0431RR	Portable gaseous oxygen system, rental; includes regulator, flowmeter, humidifier, cannula or mask, and tubing	$33.44	$35.97
E0434RR	Portable liquid oxygen system, rental; includes portable container, supply reservoir, humidifier, flowmeter, refill adapter, contents gauge, cannula or mask, and tubing	$33.63	$35.97
E0439RR	Stationary liquid oxygen system, rental; includes use of reservoir, contents (per unit), regulator, flowmeter, humidifier, nebulizer, cannula or mask, and tubing; 1 unit = 10 lbs.	$184.01	$213.11
E0441	Oxygen contents, gaseous, per unit (for use with owned gaseous stationary systems or when both a stationary and portable gaseous system are owned; 1 unit = 50 cubic ft.)	$93.95	$138.53
E0442	Oxygen contents, liquid, per unit (for use with owned liquid stationary systems or when both a stationary and portable liquid system are owned; 1 unit = 10 lbs.)	$98.37	$138.53
E0443	Portable oxygen contents, gaseous, per unit (for use only with portable gaseous systems when no stationary gas or liquid system is used; 1 unit = 5 cubic ft.)	$14.05	$18.20
E0444	Portable oxygen contents, liquid, per unit (for use only with portable liquid systems when no stationary gas or liquid system is used; 1 unit = 1 lb.)	$15.20	$18.20
E1400RR	Oxygen concentrator, manufacturer specified maximum flow rate does not exceed 2 liters per minute, at 85 percent or greater concentration	$175.33	$213.11
E1401RR	Oxygen concentrator, manufacturer specified maximum flow rate greater than 2 liters per minute, does not exceed 3 liters per minute, at 85 percent or greater concentration	$175.33	$213.11
E1402RR	Oxygen concentrator, manufacturer specified maximum flow rate greater than 3 liters per minute, does not exceed 4 liters per minute, at 85 percent or greater concentration	$174.30	$213.11
E1403RR	Oxygen concentrator, manufacturer specified maximum flow rate greater than 4 liters per minute, does not exceed 5 liters per minute, at 85 percent or greater concentration	$174.30	$213.11
E1404RR	Oxygen concentrator, manufacturer specified maximum flow rate greater than 5 liters per minute, at 85 percent or greater concentration	$176.22	$213.11
E1405RR	Oxygen and water vapor enriching system with heated delivery	$225.40	$245.39
E1406RR	Oxygen and water vapor enriching system without heated delivery	$210.23	$231.93

Table 2-3. Hospital Beds and Accessories

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
E0250RR	Hospital bed, fixed height, with any type side rails, with mattress	$62.58	$93.25
E0251RR	Hospital bed, fixed height, with any type side rails, without mattress	$53.13	$70.66
E0255RR	Hospital bed, variable height (hi-lo), with any type side rails, with mattress	$72.01	$107.10
E0256RR	Hospital bed, variable height (hi-lo), with any type side rails, without mattress	$59.94	$75.24
E0260RR	Hospital bed, semi-electric (head and foot adjustment), with any type side rails, with mattress	$95.66	$136.14
E0261RR	Hospital bed, semi-electric (head and foot adjustment), with any type side rails, without mattress	$85.07	$111.03
E0265RR	Hospital bed, total electric (head, foot and height adjustment), with any type side rails, with mattress	$106.44	$162.06
E0266RR	Hospital bed, total electric (head, foot and height adjustment), with any type side rails, without mattress	$97.89	$143.98
E0271NU	Mattress, innerspring	$131.80	$180.01
E0271RR	Mattress, innerspring	$13.18	$18.70
E0271UE	Mattress, innerspring	$98.85	$140.63
E0272NU	Mattress, foam rubber	$135.66	$182.15
E0272RR	Mattress, foam rubber	$13.57	$18.22
E0272UE	Mattress, foam rubber	$101.75	$136.61
E0280NU	Bed cradle, any type	$38.16	$35.29
E0280RR	Bed cradle, any type	$3.82	$3.55
E0280UE	Bed cradle, any type	$28.62	$26.47
E0290RR	Hospital bed, fixed height, without side rails, with mattress	$53.85	$71.29
E0291RR	Hospital bed, fixed height, without side rails, without mattress	$45.03	$51.79

(continued)

Table 2-3. Hospital Beds and Accessories (continued)

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
E0292RR	Hospital bed, variable height (hi-lo), without side rails, with mattress	$59.88	$75.40
E0293RR	Hospital bed, variable height (hi-lo), without side rails, without mattress	$53.18	$64.20
E0294RR	Hospital bed, semi-electric (head and foot adjustment), without side rails, with mattress	$83.74	$105.93
E0295RR	Hospital bed, semi-electric (head and foot adjustment), without side rails, without mattress	$80.04	$103.25
E0296RR	Hospital bed, total electric (head, foot, and height adjustment) without side rails, with mattress	$95.04	$133.13
E0297RR	Hospital bed, total electric (head, foot, and height adjustment), without side rails, without mattress	$87.30	$114.05
E0305RR	Bed side rails, half length	$10.74	$14.42
E0310NU	Bed side rails, full length	$114.08	$175.41
E0310RR	Bed side rails, full length	$11.41	$18.45
E0310UE	Bed side rails, full length	$85.56	$131.55
E0910RR	Trapeze bars, a/k/a patient helper, attached to bed, with grab bar	$15.89	$19.07
E0940RR	Trapeze bar, free standing, complete with grab bar	$24.17	$29.39

Table 2-4. Enteral Nutrition

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
B4034	Enteral feeding supply kit; syringe, per day	$4.55	$5.60
B4035	Enteral feeding supply kit; pump fed, per day	$7.98	$10.67
B4036	Enteral feeding supply kit; gravity fed, per day	$5.45	$7.31
B4081	Nasogastric tubing with stylet	$15.27	$19.78
B4082	Nasogastric tubing without stylet	$11.81	$14.73
B4083	Stomach tube-levine type	$1.95	$2.25
B4084	Gastrostomy/jejunostomy tubing	$15.12	$16.52
B4085	Gastrostomy tube, silicone with sliding ring, each	$32.64	$37.48
B4150	Enteral formulae; category I: semi-synthetic intact protein/protein isolates, 100 calories = 1 unit	$0.56	$0.61
B4151	Enteral formulae; category I: natural intact protein/protein isolates, 100 calories = 1 unit	$1.26	$1.43
B4152	Enteral formulae; category II: intact protein/protein isolates (calorically dense), 100 calories = 1 unit	$0.45	$0.51
B4153	Enteral formulae; category III: hydrolized protein/amino acids; 100 calories = 1 unit	$1.57	$1.74
B4154	Enteral formulae; category IV: defined formula for special metabolic need, 100 calories = 1 unit	$1.05	$1.12
B4155	Enteral formulae; category V: modular components (protein, carbohydrates, fat), 100 calories = 1 unit	$0.81	$0.87
B4156	Enteral formulae; category VI: standardized nutrients, 100 calories = 1 unit	$1.27	$1.24
B9000NU	Enteral nutrition infusion pump; without alarm	$695.62	$1,121.97
B9000RR	Enteral nutrition infusion pump; without alarm	$69.56	$103.10
B9000UE	Enteral nutrition infusion pump; without alarm	$521.72	$841.47
B9002NU	Enteral nutrition infusion pump; with alarm	$793.65	$1,121.97
B9002RR	Enteral nutrition infusion pump; with alarm	$79.36	$108.66
B9002UE	Enteral nutrition infusion pump; with alarm	$595.24	$841.47
E0776NUXA	IV pole	$70.73	$93.30
E0776RRXA	IV pole	$7.07	$23.62
E0776UEXA	IV pole	$53.05	$29.15

Table 2-5. Urological Supplies

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
A4310	Insertion tray without drainage bag and without catheter (accessories only)	$5.30	$6.26
A4311	Insertion tray without drainage bag with indwelling catheter, Foley type, two-way latex with coating (teflon, silicone, silicone elastomer, or hydrophilic, etc.)	$9.52	$12.04
A4312	Insertion tray without drainage bag with indwelling catheter, Foley type, two-way, all silicone	$13.71	$17.20
A4313	Insertion tray without drainage bag with indwelling catheter, Foley type, three-way, for continuous irrigation	$12.14	$15.02
A4314	Insertion tray with drainage bag with indwelling catheter, Foley type, two-way latex with coating (teflon, silicone, silicone elastomer, or hyrophilic, etc.)	$17.20	$20.50
A4315	Insertion tray with drainage bag with indwelling catheter, Foley type, two-way, all silicone	$17.62	$21.39
A4316	Insertion tray with drainage bag with indwelling catheter, Foley type, three-way, for continuous irrigation	$20.15	$23.03
A4320	Irrigation tray with bulb or piston syringe, any purpose	$4.16	$5.08
A4321	Therapeutic agent for urinary catheter irrigation	$5.81	$1.00
A4322	Irrigation syringe, bulb, or piston, each	$1.97	$2.69
A4323	Sterile saline irrigation solution, 1000 ml.	$6.05	$7.68
A4326	Male external catheter specialty type (e.g., inflatable, faceplate, etc.) each	$8.38	$10.29
A4327	Female external urinary collection device: metal cup, each	$34.91	$40.32
A4328	Female external urinary collection device: pouch, each	$7.64	$9.40
A4338	Indwelling catheter; Foley type; two-way latex with coating (teflon, silicone, silicone elastomer, or hydrophilic, etc.), each	$8.49	$11.70
A4340	Indwelling catheter; specialty type (coude, mushroom, wing, etc.), each	$22.78	$30.28
A4344	Indwelling catheter; Foley type; two-way all silicone, each	$12.44	$15.28
A4346	Indwelling catheter; Foley type, three-way for continuous irrigation, each	$13.37	$18.69
A4351	Intermittent urinary catheter; straight tip, each	$1.41	$1.73
A4352	Intermittent urinary catheter; coude (curved) tip, each	$4.20	$5.20

(continued)

Table 2-5. Urological Supplies (continued)

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
A4353	Intermittent urinary catheter; with insertion supplies	$5.23	$6.66
A4354	Insertion tray with drainage bag but without catheter	$7.99	$9.56
A4355	Irrigation tubing set for continuous bladder irrigation through a three-way indwelling Foley catheter, each	$5.75	$7.23
A4356	External urethral clamp or compression device (not to be used for catheter clamp), each	$35.54	$43.52
A4357	Bedside drainage bag, day or night, with or without anti-reflux device, with or without tube, each	$7.55	$9.25
A4358	Urinary leg bag; vinyl, with or without tube, each	$5.02	$6.33
A4359	Urinary suspensory without leg bag, each	$19.92	$27.67
A5102	Bedside drainage bottle with or without tubing, rigid or expandable, each	$18.28	$21.53
A5105	Urinary suspensory; with leg bag, with or without tube	$26.07	$33.05
A5112	Urinary leg bag; latex	$26.04	$33.02
A5113	Leg strap; latex, replacement only, per set	$3.91	$4.48
A5114	Leg strap; foam or fabric, replacement only, per set	$5.98	$7.69
A6265	Tape, all types, per 18 sq. in.	$0.12	$0.12
K0280	Extension drainage tubing, any type, any length, with connector/adaptor; for use with urinary leg bag or urostomy pouch, each	$3.00	$3.04
K0281	Lubricant, individual sterile packet, for insertion of urinary catheter, each	$0.12	$0.12
K0407	Urinary catheter anchoring device, adhesive skin attachment	$1.86	$2.10
K0408	Urinary catheter anchoring device, leg strap	$4.14	$4.71
K0409	Sterile water irrigation solution, 1,000 ml.	$5.32	$6.04
K0410	Male external catheter, with adhesive coating, each	$1.79	$2.07
K0411	Male external catheter, with adhesive strip, each	$1.43	$1.72

Table 2-6. Surgical Dressings

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
A4460	Elastic bandage, per roll (e.g., compression bandage)	$1.38	$0.97
A4462	Abdominal dressing holder/binder, each	$4.19	$3.13
A6154	Wound pouch, each	$17.31	$13.29
A6196	Alginate dressing, wound cover, pad size 16 sq. in. or less, each dressing	$7.47	$7.01
A6197	Alginate dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., each dressing	$15.88	$15.68
A6199	Alginate dressing, wound filler, per 6 inches	$6.73	$5.04
A6203	Composite dressing, pad size 16 sq. in. or less, with any size adhesive border, each dressing	$4.21	$3.19
A6204	Composite dressing, pad size more than 16 sq. in. but less than or equal to 48 sq. in., with any size adhesive border, each dressing	$7.07	$5.94
A6207	Contact layer, more than 16 sq. in. but less than or equal to 48 sq. in., each dressing	$8.62	$7.00
A6209	Foam dressing, wound cover, pad size 16 sq. In. or less, without adhesive border, each dressing	$8.03	$7.14
A6210	Foam dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$17.97	$19.00
A6211	Foam dressing, wound cover, pad size more than 48 sq. in., without adhesive border, each dressing	$25.87	$28.01
A6212	Foam dressing, wound cover, pad size 16 sq. in. or less, with any size adhesive border, each dressing	$8.96	$9.25
A6213	Foam dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., with any size adhesice border, each dressing	$14.53	$9.82
A6214	Foam dressing, wound cover, pad size more than 48 sq. in., with any size adhesive border, each dressing	$17.65	$9.82
A6216	Gauze, non-impregnated, non-sterile, pad size 16 sq. in. or less, without adhesive border, each dressing	$0.07	$0.05
A6219	Gauze, non-impregnated, pad size 16 sq. in. or less, with any size adhesive border, each dressing	$1.40	$0.91
A6220	Gauze, non-impregnated, pad size more than 16 sq. in. but less than or equal to 48 sq. in., with any size adhesive border, each dressing	$3.12	$2.46

(continued)

Table 2-6. Surgical Dressings (continued)

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
A6222	Gauze, impregnated, other than water or normal saline, pad size 16 sq. in. or less, without adhesive border, each dressing	$2.88	$2.03
A6223	Gauze, impregnated, other than water or normal saline, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$2.92	$2.30
A6224	Gauze, impregnated, other than water or normal saline, pad size more than 48 sq. in., without adhesive border, each dressing	$4.22	$3.44
A6229	Gauze, impregnated, water or normal saline, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$4.30	$3.44
A6234	Hydrocolloid dressing, wound cover, pad size 16 sq. in. or less, without adhesive border, each dressing	$7.84	$6.24
A6235	Hydrocolloid dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$16.58	$16.05
A6236	Hydrocolloid dressing, wound cover, pad size more than 48 sq. in., without adhesive border, each dressing	$29.34	$25.99
A6237	Hydrocolloid dressing, wound cover, pad size 16 sq. in. or less, with any size adhesive border, each dressing	$9.41	$7.54
A6238	Hydrocolloid dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., with any size adhesive dressing, each dressing	$27.71	$21.74
A6240	Hydrocolloid dressing, wound filler, paste, per fluid ounce	$12.83	$11.68
A6241	Hydrocolloid dressing, wound filler, dry form, per gram	$3.17	$2.45
A6242	Hydrogel dressing, wound cover, pad size 16 sq. in. or less, without adhesive border, each dressing	$6.06	$5.79
A6243	Hydrogel dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$11.18	$11.75
A6244	Hydrogel dressing, wound cover, pad size more than 48 sq. in., without adhesive border, each dressing	$28.36	$37.46
A6245	Hydrogel dressing, wound cover, pad size 16 sq. in. or less, with any size adhesive border, each dressing	$8.46	$6.93

(continued)

Table 2-6. Surgical Dressings (continued)

Code	Description	Demonstration Maximum Allowance	Florida Fee Schedule
A6246	Hydrogel dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., with any size adhesive border, each dressing	$11.89	$9.46
A6247	Hydrogel dressing, wound cover, pad size more than 48 sq. in., with any size adhesive border, each dressing	$27.38	$22.68
A6248	Hydrogel dressing, wound filler, gel, per fluid ounce	$14.47	$15.49
A6251	Specialty absorptive dressing, wound cover, pad size 16 sq. in. or less, without adhesive border, each dressing	$2.35	$1.90
A6252	Specialty absorptive dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$3.42	$3.10
A6253	Specialty absorptive dressing, wound cover, pad size more than 48 sq. in., without adhesive border, each dressing	$6.46	$6.05
A6254	Specialty absorptive dressing, wound cover, pad size 16 sq. in. or less, with any size adhesive border, each dressing	$1.90	$1.16
A6255	Specialty absorptive dressing, wound cover, pad size more than 16 sq. in. but less than or equal to 48 sq. in., with any size adhesive border, each dressing	$3.83	$2.89
A6257	Transparent film, 16 sq. in. or less, each dressing	$1.99	$1.46
A6258	Transparent film, more than 16 sq. in. but less than or equal to 48 sq. in., each dressing	$5.79	$4.10
A6259	Transparent film, more than 48 sq. in., each dressing	$13.71	$10.43
A6263	Gauze, elastic, non-sterile, all types, per linear yard	$0.38	$0.28
A6264	Gauze, non-elastic, non-sterile, per linear yard	$0.64	$0.46
A6265	Tape, all types, per 18 sq. in.	$0.17	$0.12
A6266	Gauze, impregnated, other than water or normal saline, any width, per linear yard	$2.26	$1.83
A6402	Gauze, non-impregnated, sterile, pad size 16 sq. in. or less, without adhesive border, each dressing	$0.15	$0.12
A6403	Gauze, non-impregnated, sterile, pad size more than 16 sq. in. but less than or equal to 48 sq. in., without adhesive border, each dressing	$0.51	$0.41
A6405	Gauze, elastic, sterile, all types, per linear yard	$0.51	$0.32
A6406	Gauze, non-elastic, sterile, per linear yard	$0.96	$0.76

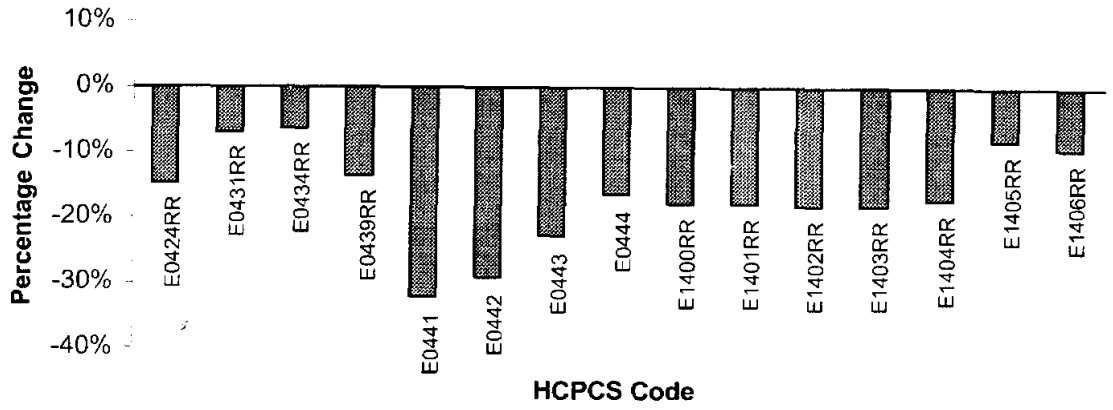

Figure 2-1. Demonstration Price Changes for Oxygen Supplies

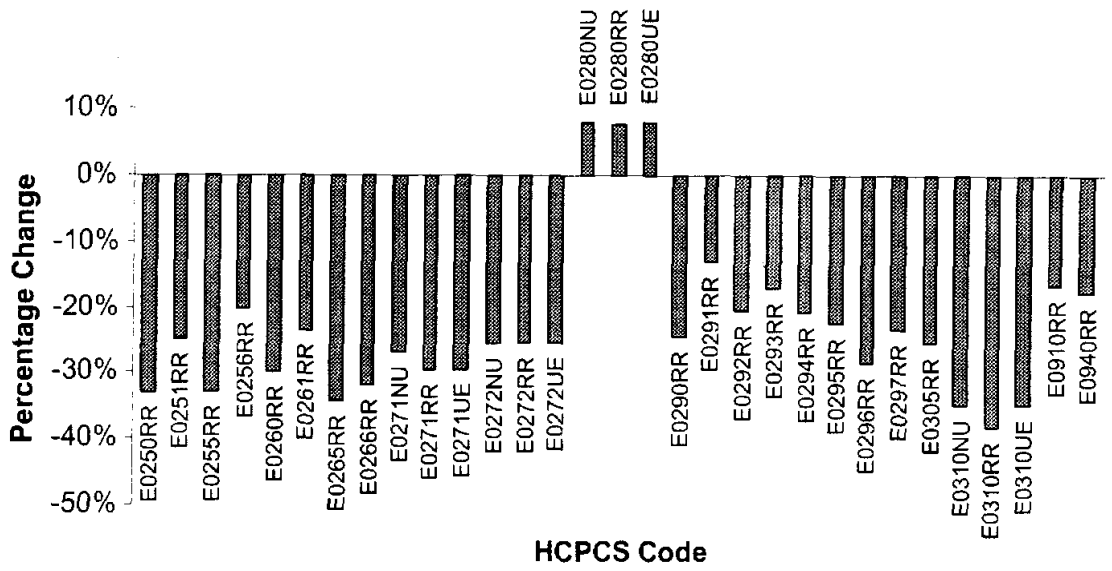

Figure 2-2. Demonstration Price Changes for Hospital Beds and Accessories

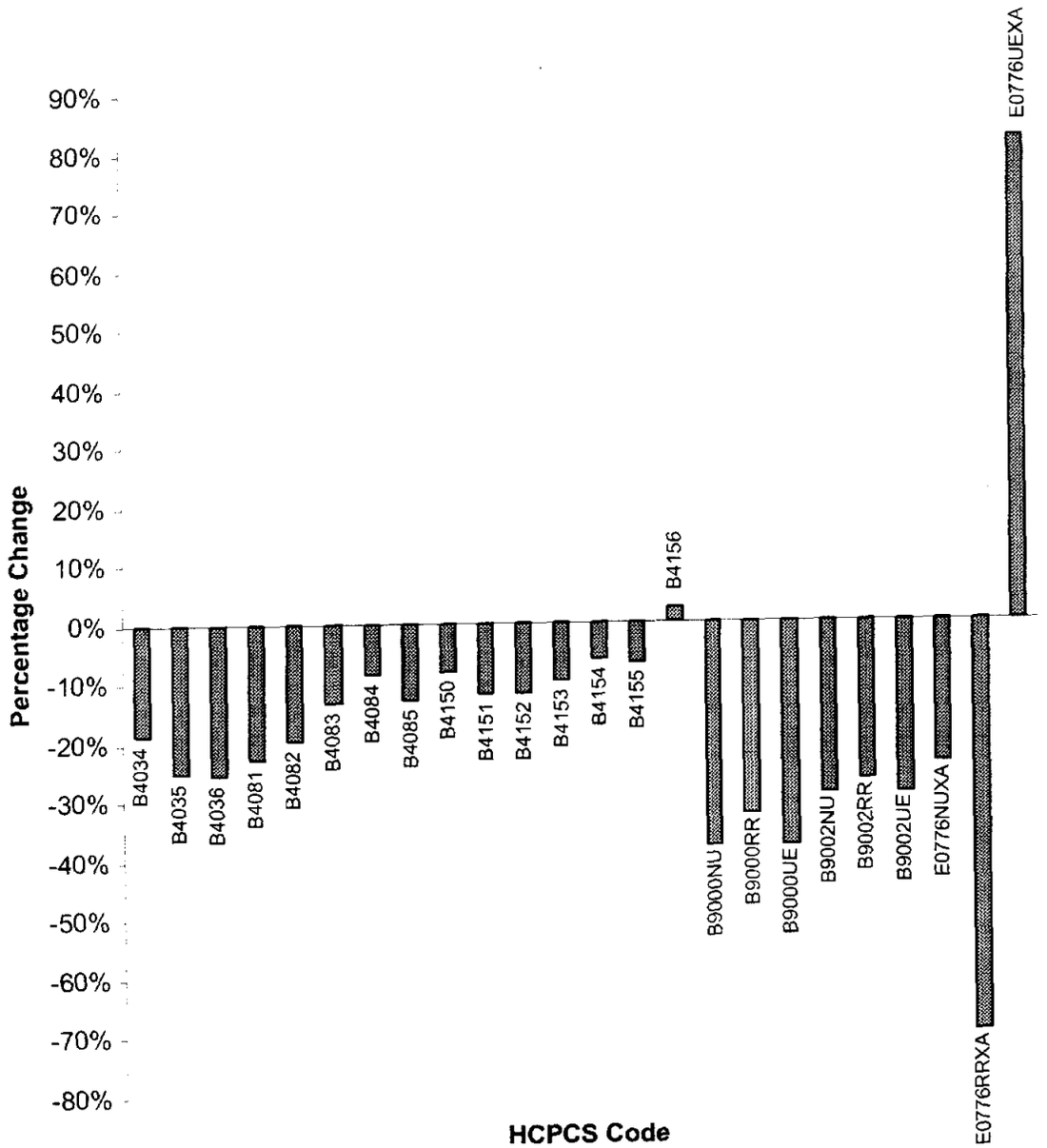

Figure 2-3. Demonstration Price Changes for Enteral Nutrition

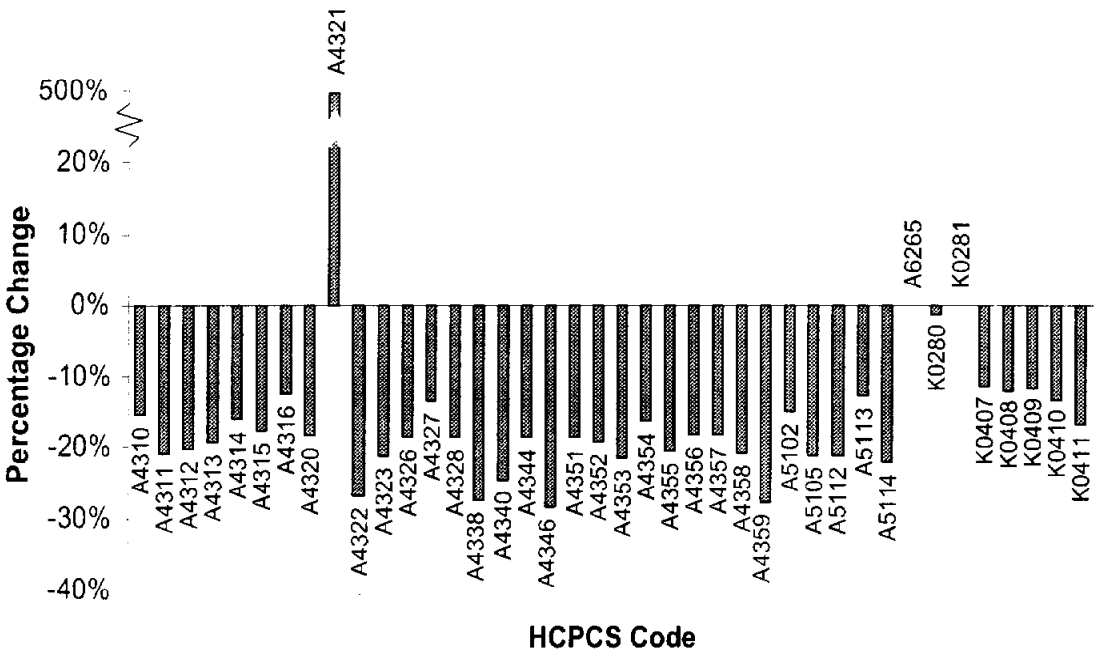

Figure 2-4. Demonstration Price Changes for Urological Supplies

exception of two codes that did not change and therapeutic agent for urinary catheter irrigation (HCPCS code A4321), which rose over 450 percent, from $1.00 to $5.81. The latter code has an extremely small product weight, indicating it was seldom supplied in the demonstration area. The biggest discounts of 25 percent to 30 percent were obtained for irrigation syringes, indwelling two-way latex Foley catheters, indwelling specialty type catheters, indwelling three-way Foley catheters for continuous irrigation, and urinary suspension without bag (HCPCS codes A4322, A4338, A4340, A4346, and A4359, respectively). Discounts for most of the other items ranged from about 10 percent to 20 percent.

Changes in the demonstration price for each product in the surgical dressings category are graphed in Figure 2-5. In contrast to the other product categories, these demonstration prices are not discounted for the majority of items. The demonstration price is discounted up to 20 percent for foam dressings (HCPCS codes A6210 through A6212) and three out of six types of hydrogel dressings (HCPCS codes A6243, A6244, and A6248). Prices for the remaining 56 products actually increased from about 5 percent to 80 percent. Note that because the weight of the discounted products was large, the composite bid declined.

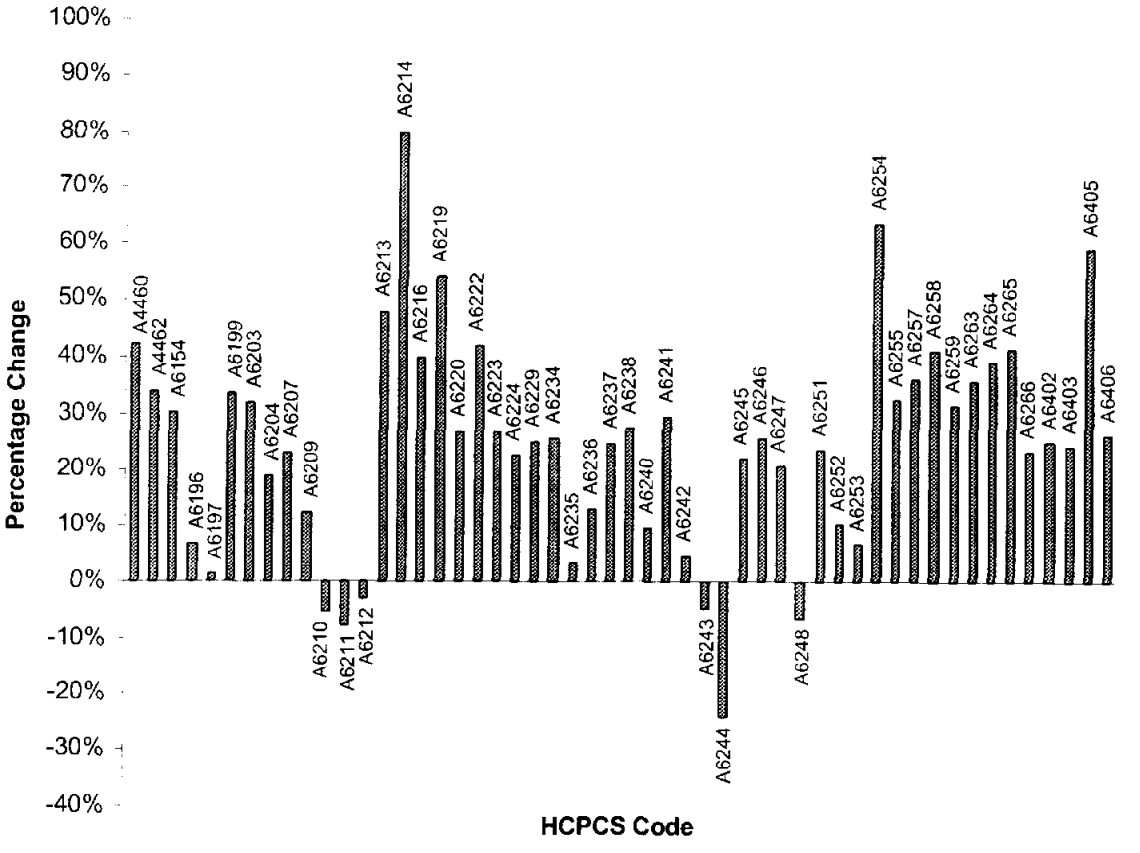

Figure 2-5. Demonstration Price Changes for Surgical Dressings

2.3 Estimated Annual Savings to Medicare and Beneficiaries

To estimate savings from the demonstration in each product category, we multiplied the 1998 (the last year for which data are available) volume in Polk County by the demonstration price for each procedure and then summed across all procedures in the product category. This produces an estimate of demonstration savings under the assumption that utilization is unaffected by the demonstration. The assumption of constant utilization may not hold true in reality because demonstration changes in price may affect demand for DMEPOS, and demand may change for reasons unrelated to the demonstration. In addition, the estimate applies the new demonstration prices to all demonstration procedures. This approach may slightly overstate demonstration savings because the demonstration transition rules allow suppliers with existing rental agreements for enteral pumps and hospital beds to continue to receive the preexisting fees for the duration of the rental period. In future evaluation reports, we will examine whether changes in demand or

transition policies significantly influence demonstration savings. In the meantime, our estimate provides a useful measure of the demonstration's pure price effect.

Estimated annual reductions in allowed charges are shown in Table 2-7. The reductions in allowed charges are $918,472 for oxygen supplies, $190,229 for hospital beds and accessories, $167,631 for enteral nutrition, and $16,409 for urological supplies. However, for surgical dressings, allowed charges are estimated to increase by $14,978. Overall, assuming utilization remains constant, the demonstration is estimated to reduce annual allowed charges by a total of $1,277,763, or about 17 percent. The cost of DME supplies is shared by Medicare and the beneficiary. The beneficiaries' copayment rate is 20 percent, and the remaining 80 percent of allowed charges is covered by Medicare. Thus, we estimate that the demonstration will reduce Medicare payments by $1,022,210, and beneficiary payments by $255,553 annually.

Table 2-7. Estimated Annual Allowed Charges, Based on 1998 Volumes[a]

	Estimated Annual Allowed Charges Under the Demonstration	Estimated Annual Allowed Charges Under Florida Fee Schedule	Estimated Annual Savings Under the Demonstration	Percentage Savings
Oxygen Supplies	$4,670,181	$5,588,654	$918,472	16.4%
Hospital Beds and Accessories	$456,998	$647,228	$190,229	29.4%
Enteral Nutrition	$893,920	$1,061,552	$167,631	15.8%
Urological Supplies	$74,600	$91,008	$16,409	18.0%
Surgical Dressings	$161,445	$146,467	$(14,978)	–10.2%
Total	$6,257,144	$7,534,908	$1,277,763	17.0%

[a]Assuming volume is the same as 1998 volume.

For oxygen supplies, hospital beds and accessories, and urological supplies, the estimated percentage reductions in allowed charges from the demonstration (see Table 2-7) are nearly the same as the percentage differences between the composite price based on the demonstration prices and the composite bid based on the Florida fee schedule (see Table 2-1). In contrast, the estimated reduction in allowed charges for enteral nutrition (15.8 percent in Table 2-7) is smaller than the 27.2 percent reduction suggested by Table 2-1. And we estimate a 10.2 percent increase in allowed charges for the demonstration for surgical dressings, even though the composite price based on demonstration prices is 12.6 percent less than the composite based on the fee schedule.

To understand these differences, we examined the calculation of demonstration prices in detail. This examination focused on the weights used to determine the composite bid for each supplier; results are described below.

2.4 Weighting Issues

A key component of the bid evaluation process is the calculation of the composite bid for each demonstration product category. The composite bid is a way to aggregate a supplier's bids for each individual procedure into a single bid for the whole category that is comparable across bidders. A supplier's composite bid for the product category is calculated by multiplying the supplier's bid for each procedure by the procedure's weight and then summing the weighted bids across every procedure. Each procedure's weight represents the share of that procedure relative to all of the procedures in the category; the weights add to one for each category.

In the Polk County demonstration, the weights for each procedure were set equal to the procedure's share of allowed charges relative to the allowed charges for all procedures in the category in Florida in 1997. For example, if a procedure code represents 80 percent of all allowed charges for oxygen equipment, that procedure will have a weight equal to 0.80. The weights were printed in the RFB and incorporated into the bidding software that was available to all bidders.

Several important issues related to weighting have arisen from our analysis of the bidding results. Briefly, the key issues are as follows:

- The weighting mechanism, combined with the formula to set prices for individual procedures, can cause prices to be set too high. This problem occurred for surgical dressings.
- With the current weighting mechanism, it is possible that a supplier offering lower allowed charges to HCFA will have a higher composite bid than a supplier offering higher allowed charges to HCFA.
- The weighting process does not adequately distinguish among HCPCS code modifiers that are associated with new purchase, used purchase, and rental payments. In the case of enteral nutrition, the use of new purchase prices in the calculation of the composite bid has a significant impact.

All three of these issues are related to the fact that a weighting mechanism based on allowed charges puts too much weight on high-priced procedures. Bid prices obviously must enter the calculation of the composite bid, and, as such, higher bids should lead to a higher composite bid. However, the problem with the weights based on allowed charges is that the price effect is essentially squared in the calculation of the composite bid, and squaring a large price has a disproportionately large impact.

Weighting issues are discussed in detail in Appendix A. In the appendix, we also discuss an alternative weighting mechanism based on procedure volume and show why volume weighting is preferred to the allowed charge weights used in Polk County. HCFA plans to use volume weighting in the next demonstration site, San Antonio, Texas.

2.5 Utilization

As emphasized earlier, our estimates of savings under the demonstration are based on the assumption of constant utilization. There are not yet enough claims data to tell whether utilization has changed under the demonstration. As more data become available, we will analyze whether utilization changes. It is possible that there will be changes in utilization that can be attributed to the demonstration, but it is also likely that a portion of changes in utilization is not attributable to the demonstration. For example, changes in how home health agencies are reimbursed will affect volume in both Polk County and areas not in the demonstration. To control for these factors, we will perform a pre-post analysis of utilization using Brevard County, Florida as a comparison county. The comparison county allows us to distinguish between changes due to the demonstration that only affect Polk County and changes due to contemporaneous trends in the demand or supply of DMEPOS that affect both Polk and Brevard Counties. This will allow us to identify changes in utilization that are due to the demonstration.

When the claims data become available, we will analyze both changes in utilization per user and the aggregate number of claims with an observation defined over a month, quarter, or 6-month period. We will perform multivariate analyses to identify the effect of the demonstration on these outcomes.

2.6 Summary and Next Steps

We estimate that competitive bidding will reduce Medicare allowed charges by nearly $1.3 million annually, or about 17 percent, assuming that utilization remains constant. Allowed charges will fall substantially in every product category except surgical dressings, where allowed charges will actually rise. The increase in allowed charges for surgical dressings is an unexpected result of the weighting mechanism used to construct composite bids in Polk County. This mechanism, based on allowed charges, produces other unintended results. HCFA will use a more attractive weighting mechanism based on volume in its next demonstration site.

We do not yet have sufficient claims data to evaluate whether the demonstration has an effect on DMEPOS utilization. We will analyze the impact on utilization during the next year of the evaluation. When that analysis is complete, we will evaluate the combined price and utilization effects on allowed charges.

SECTION 3
BENEFICIARY ACCESS

Access in this context can be defined as beneficiaries' ability to locate and use, without undue burden, the services and products that are covered by the Medicare program. Competitive bidding reduces the number of approved suppliers in Polk County. Approved suppliers could adapt to the potential for increased market share by advertising, opening new locations to fill in geographic gaps left by unapproved suppliers, or improving service, thereby increasing beneficiary access. Or they may respond to lower prices by offering lower quality products, delaying routine maintenance, or employing fewer service technicians and customer service representatives, thereby increasing the need for service calls, extending waiting times, and decreasing access. It is important to monitor the demonstration's effect on beneficiary access to evaluate whether competitive bidding affects beneficiaries' ability to obtain needed products and services.

In this section, we discuss the findings from the baseline beneficiary survey, which provides an understanding of access in Polk County before the demonstration began; describe features of the demonstration design that are intended to maintain and promote beneficiary access to DMEPOS; discuss the service areas offered by demonstration suppliers in their bids; and discuss findings related to beneficiary access from four site visits conducted during the first year of the demonstration. We conclude with a discussion of future steps in the analysis of beneficiary access to demonstration services. The key findings in this section are as follows:

- Results from the baseline beneficiary survey indicate that access to DMEPOS was very good before the demonstration began.
- The demonstration design includes a number of features that promote beneficiary access.
- Twelve of the 16 demonstration suppliers agreed to serve all of Polk County. Thus, beneficiaries throughout the county can choose from a fairly wide selection of providers.
- During the transition to demonstration prices, there were no substantial barriers to access. This result is related to the transition policies for oxygen, hospital beds, and enteral nutrition, as well as nondemonstration suppliers' willingness to accept demonstration prices and continue serving their patients.

- Through our latest site visits in May 2000, no systematic problems in beneficiary access had materialized.
- It is premature to evaluate the long-term effects of the demonstration on access.

3.1 Baseline Beneficiary Survey Results

Results from the baseline beneficiary survey (Table 3-1) indicate that, prior to the demonstration, beneficiary access to DMEPOS products and services in Polk County was quite good; access was nearly identical in Brevard County, the comparison site. In the two counties, nearly all oxygen users surveyed and the vast majority of medical equipment users surveyed received prescribed equipment within 2 days of the order being placed. Almost all beneficiaries using these services knew how to contact their supplier, and over half of both oxygen and medical equipment users lived within 10 miles of their supplier. Of those oxygen users who phoned their supplier after business hours (about 1 out of 5 oxygen users), over 80 percent always got the help or advice they needed. These results suggest that beneficiaries were able to access the equipment and services they needed prior to the onset of the demonstration.

Table 3-1. Beneficiary Ratings of Access Variables, Polk and Brevard Counties

	Oxygen Users (%)			Other DMEPOS Users (%)		
	Polk	Brevard	Both Counties	Polk	Brevard	Both Counties
Delivery of equipment after ordering						
Same day	74.5	75.1	75.0	44.3	45.5	44.9
1-2 days	22.3	22.0	21.9	36.3	37.4	36.9
3-4 days	2.5	1.5	2.0	9.2	11.0	10.1
Longer	0.7	1.5	1.1	10.2	6.1	8.1
Know how to contact supplier	98.9	98.9	98.9	89.1	92.6	91.0
Supplier located within 10 miles	57.1	63.7	60.5	48.6	64.4	56.8
Initiated a complaint during last 6 months	25.7	25.7	25.7	25.3	22.4	23.7
Complaint resolved satisfactorily	92.5	91.6	92.0	72.1	86.4	79.1
Needed after hours help	11.6	10.1	10.9	5.8	5.9	5.8
Received needed help	93.1	96.4	94.7	78.6	56.3	66.7

We will repeat the beneficiary survey approximately 12 months after the demonstration prices went into effect in Polk County. We will compare results from this survey to the baseline

results and analyze whether the demonstration has had a significant effect on access variables. The survey will again collect data from both Polk and Brevard Counties, allowing us to distinguish effects of the demonstration in Polk County from the effects of factors affecting beneficiaries in both Polk and Brevard Counties.

3.2 Design Features to Promote and Maintain Beneficiary Access

Medicare previously allowed beneficiaries to use any DMEPOS supplier willing to accept program rules and reimbursements. Under the demonstration, losing bidders and suppliers who did not bid can no longer provide demonstration products to new Medicare patients; under demonstration transition policies (see below), they may provide services to existing Medicare patients under certain circumstances. With fewer suppliers serving the demonstration area, this naturally raises the concern that the demonstration will reduce beneficiary access to DMEPOS.

To address this concern, the demonstration design included a number of features intended to promote and maintain beneficiary access:

- Multiple winners were selected in each product category. The multiple winners still have to compete among themselves to attract business; this competition can enhance access and quality. In Polk County, from four to 13 demonstration suppliers were selected in each product category.
- During the bid evaluation process, supplier capacity was one of the criteria used to select the cutoff composite bid that defined the competitive range for the bidding. The competitive range was set large enough so that the final selection of demonstration suppliers has enough capacity to serve the entire area, even if a few of the suppliers initially in the competitive range were not selected.
- The Bid Evaluation Panel also examined the financial viability of firms in the competitive range to ensure that access problems would not arise if one or more demonstration suppliers went bankrupt.
- Transition policies allowed nondemonstration oxygen suppliers to continue serving their existing patients throughout the demonstration. Similarly, transition policies allowed nondemonstration suppliers with capped rental agreements for hospital beds or enteral nutrition pumps to continue to supply existing patients.
- Quality and service standards were created that apply to delivery, after-hours emergency service, and natural disaster procedures. These standards are more stringent than the standards to receive a National Suppliers Clearinghouse number, a requirement for Medicare reimbursement for DMEPOS.

3.3 Results of the Bidding: Service Areas

As part of their bids, 12 of the 16 demonstration suppliers agreed to provide service to every zip code in Polk County. All of the demonstration suppliers who provide surgical dressings

and urological supplies—the two product categories with the fewest suppliers in total—serve the entire county, as do nine of the 13 oxygen suppliers. The large number of suppliers supplying each zip code suggests that beneficiary access remains strong.

3.4 Site Visit Results

Since June 1999, we have conducted four site visits to Polk County, Florida. During these visits, we interviewed demonstration suppliers, nondemonstration suppliers, home health agency representatives, hospital discharge planners, beneficiaries, and the Ombudsman.

The transition to demonstration prices in October 1999 passed relatively smoothly. There were no reports of substantial or widespread barriers to access. This smooth transition seems to be related to both the existence of the transition policies and the nondemonstration oxygen suppliers' willingness to continue serving their patients. The transition policies apply only to capped-rental equipment, which includes enteral nutrition infusion pumps and hospital beds, and home oxygen therapy. Preexisting rental or purchase contracts for infusion pumps and hospital beds are eligible for Medicare reimbursement according to regular fee schedule levels throughout the demonstration. Beneficiaries beginning the use of these items after the start of the demonstration are required to obtain the equipment from a demonstration supplier. A beneficiary who has a preexisting relationship with a nondemonstration oxygen supplier is not required to switch to a demonstration oxygen supplier, provided the oxygen supplier accepts the demonstration price schedule.

As it turned out, all nondemonstration suppliers of oxygen equipment in Polk County opted to continue to serve their patients and accept the demonstration prices. In turn, most oxygen users elected to remain with their original supplier. The willingness of nondemonstration suppliers to accept the demonstration prices and continue their services was very important to oxygen users who were concerned about any potential disruption to their services.

The Ombudsman reported only a handful of specific complaints related to the beneficiaries' ability to access suppliers or products. A representative of a beneficiary group that provided a health insurance hotline reported that he received no calls regarding the demonstration during the first 2 months after the demonstration prices went into effect. This was in sharp contrast to the representative's experience when Medicare HMOs withdrew from the county, and the representative's office was flooded by calls. The hospital discharge planners also did not report access-related concerns occurring during the transition. They even reported that some demonstration suppliers from the Orlando and Tampa areas opened offices in Polk County to be more accessible and to reduce response time. Beneficiaries who began using oxygen prior

to the demonstration reported no change in quality or access during the transition (they tended to remain with the supplier they used prior to the demonstration). However, there was a report of a new oxygen user needing to switch suppliers because of poor service and difficulty accessing a portable oxygen tank. Once the beneficiary was made aware that it was possible to change suppliers, a new supplier was contacted and the beneficiary was pleased with oxygen service and supplies.

The demonstration enabled some suppliers outside of Polk County to bid and thereby enter the market. Such is the case with two of the five urological suppliers who were not providing services to Polk County residents prior to the start of the demonstration. However, contrary to their expectations, they received few referrals in Polk County. There appears to be some reluctance among both referral agents and beneficiaries about using providers located outside of the county. This reluctance is not related to concerns about quality but rather issues of access. Apparently, beneficiaries often want to come to a storefront to obtain their urological supplies and prefer doing business with a company that has a storefront nearby. One supplier based outside of Polk County, who was not providing services in Polk County prior to the demonstration, reported receiving only three new urological patients from Polk County since the demonstration began. The other supplier new to Polk County reported having 11 new urological patients.

Although we found no systematic negative effects on access to services resulting from the demonstration, beneficiaries, nondemonstration suppliers, and referral agents expressed concerns regarding potential disruptions to demonstration supplies for beneficiaries. For example, one concern that we heard from referral agents, beneficiaries, and beneficiary group representatives was that demonstration suppliers located outside of Polk County might not be able to provide services as quickly as those located within the county. The referral agents stated that some of the demonstration suppliers who do not deliver quickly enough are located outside of Polk County, but that being outside of Polk County does not necessarily predict poor service. The oxygen users and beneficiary group representatives that mentioned this concern did not actually encounter any problems, but nevertheless, were concerned that the distance could have an effect on access to service. Two representatives from the beneficiary groups mentioned that they were concerned about access: one was worried about beneficiaries on the edge of the county and the other was concerned about loss of choice among suppliers. In general, if referral agents encountered any difficulties with a demonstration supplier, they responded by switching to a different, more responsive demonstration supplier. Thus, any initial difficulties that may have occurred were not lingering problems.

A couple of referral agents expressed concern that since the demonstration began some suppliers have been less willing to provide equipment for indigent patients. This may be a result of the need for suppliers to cut costs due to the lower markup under the demonstration prices, or the supplier not being selected as a demonstration supplier. One referral agent had been relying on a particular supplier to provide products for indigent patients; however, because this supplier was not chosen to be a demonstration supplier and could no longer accept Medicare patients, the referral agent no longer felt comfortable asking this supplier to provide free equipment for indigent patients. This referral agent has since asked other participating suppliers to provide services for indigent patients and has, on occasion, been turned down. Referral agents emphasized that the lack of willingness to assist with indigent patients was not the case for all suppliers; however, it is a trend that concerns this referral agent.

3.5 Summary and Next Steps

We have found that, overall, beneficiary access to DMEPOS products and services during the demonstration has been very good. However, these results are preliminary, and it is too early in the demonstration to definitively state what effect the demonstration will have on beneficiary access in the long-run. We will monitor the progress of the demonstration and document any changes that we observe. We will do this by conducting additional site visits, during which we will interview suppliers, referral agents, beneficiaries, and the Ombudsman. We will also be conducting a follow-up survey with beneficiaries as well as a supplier survey. The follow-up beneficiary surveys will allow us to compare beneficiary ratings of access and services prior to the start of the demonstration and after 1 year's experience with the demonstration.

SECTION 4
QUALITY AND PRODUCT SELECTION

If competitive bidding results in pressure on profit margins, then suppliers may attempt to restore profits by supplying less expensive and possibly lower quality products and services. Lower quality may be manifested in a number of ways; for example, by offering lower quality products, postponing preventive maintenance, delaying service calls, limiting product selection, or reducing inventory to the point that time needed to fill orders is increased. Consequently, our approach has been to evaluate the effect of the demonstration on the quality of products and services by obtaining information directly from Medicare beneficiaries, beneficiary organizations, referral agents, and suppliers.

In this section, we discuss the level of satisfaction with suppliers reported in the baseline beneficiary survey, describe features of the demonstration design that are intended to maintain and promote quality, and discuss the findings related to quality from our site visits to Polk County. We conclude with a summary of results and discussion of future analyses we will conduct to determine the effect of the demonstration on quality. The key findings in this section are as follows:

- Results from the baseline beneficiary survey indicate that the quality of services and equipment that beneficiaries received prior to the demonstration was very good.
- The demonstration design includes a number of features that promote quality.
- There have been no systematic reports of substantial changes in the quality of services or equipment provided to beneficiaries under the demonstration. A few referral agents tried more than one demonstration supplier before finding a supplier they were satisfied with, but this appears to have been a transitory problem. If referral agents were not satisfied with the initial demonstration supplier, they switched to another demonstration supplier that provided satisfactory service and quality.
- Many of the demonstration suppliers report that they underbid on urological supplies. This resulted in a demonstration reimbursement schedule that sometimes does not cover the cost of purchasing certain items.
- We have observed no changes in product selection in the oxygen, hospital beds, and enteral nutrition product categories. Product selection may have improved in the surgical dressings category. The effects of the demonstration on product selection in the urological supplies category are unclear at this time.
- It is premature to evaluate the long-term effects of the demonstration on quality and product selection.

4.1 Baseline Beneficiary Surveys

We began the evaluation of the effect of the demonstration on the quality of products and services by conducting a baseline beneficiary survey of oxygen users and other DME users, both in Polk County and in the comparison county, Brevard County. We found that, prior to the demonstration, Medicare beneficiaries rated their satisfaction with their DME suppliers quite highly. On a scale of 0 to 10, with 0 signifying the worst possible supplier and 10 signifying the best possible supplier, nearly two-thirds of oxygen users and just under one-half of the other DMEPOS users gave their supplier a rating of 10 (Figure 4-1). Satisfaction ratings were nearly identical in the two counties. Combining responses for both counties, 92 percent of oxygen users and 74 percent of other equipment users gave their suppliers ratings of 8 or higher. Over 90 percent in each group responded that they would recommend their supplier to a friend. Only a handful of respondents, less than 2 percent, report having switched suppliers because they were dissatisfied with the service they received.

A number of factors are likely to increase patient satisfaction with their suppliers. These factors include prompt delivery, effective training in the use of the equipment, frequent supplier visits to the user's home, reliable equipment, and prompt response to equipment or service problems. Table 4-1 shows how users ranked suppliers' performance on these criteria prior to the demonstration.

As might be expected given the high baseline levels of satisfaction, users ranked their suppliers highly on most of these factors. As mentioned previously in Section 3, most beneficiaries received their equipment within 2 days after the equipment was ordered. The majority of beneficiaries reported that the training they received from the supplier when the equipment was delivered was very good or excellent. Only a few oxygen users received no training on how to use their equipment; a greater percentage of other equipment users did not receive training, but training is less important in some of these product categories. Beneficiaries reported that suppliers generally treated them with courtesy and respect, explained things in a way they could understand, and provided all the information they needed. In addition, the majority of beneficiaries reported that their equipment was very reliable.

To analyze how these factors affected beneficiary satisfaction prior to the demonstration, we performed a multivariate regression analysis with the satisfaction rating as the dependent variable. For oxygen users, we found that beneficiary satisfaction with suppliers was positively and significantly associated with the quality of training, same-day delivery, and monthly contact with the supplier. The quality of training and same-day delivery were also significantly and

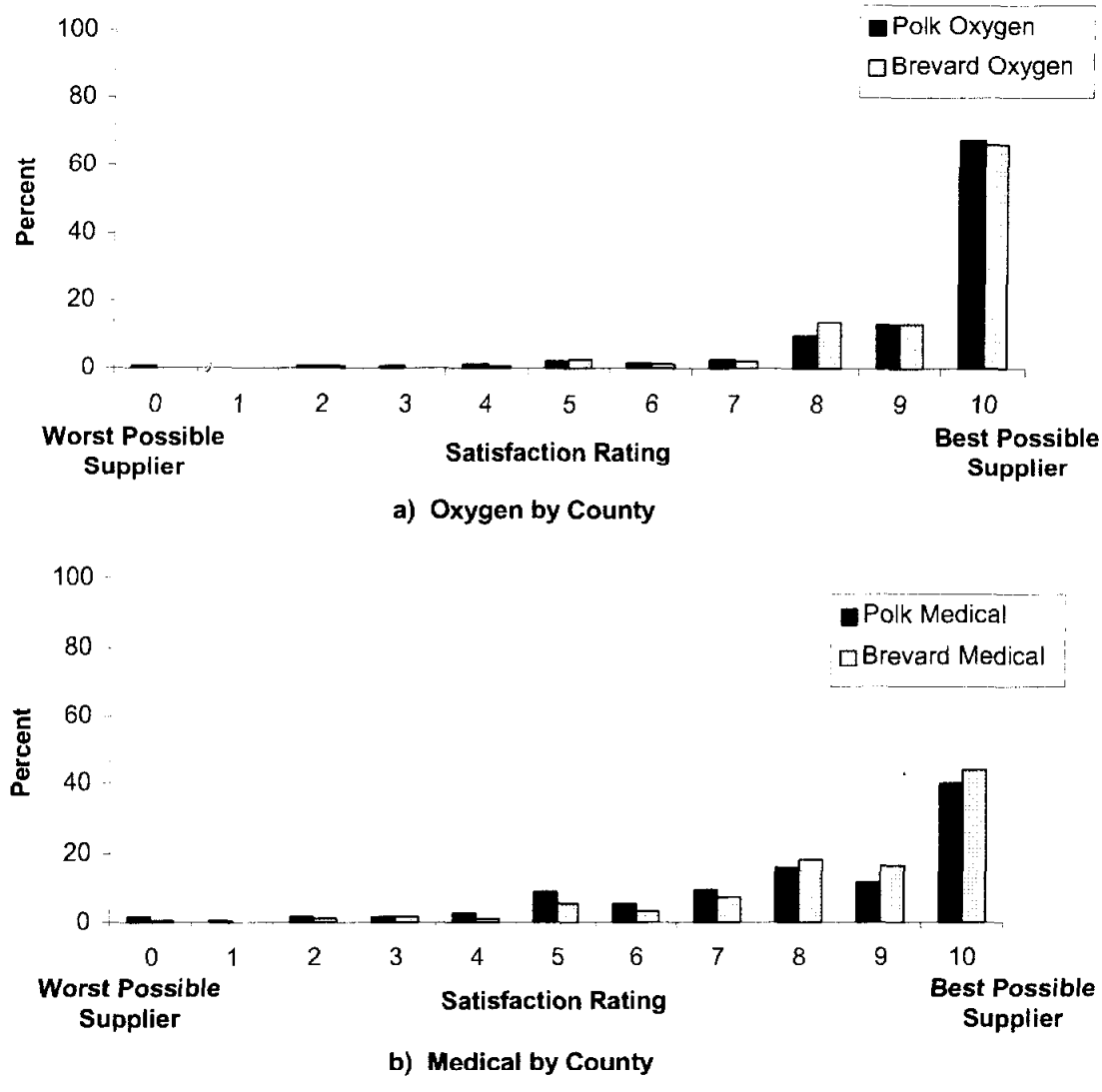

Figure 4-1. Beneficiary Satisfaction Ratings

positively associated with beneficiary satisfaction with other DME suppliers, but frequency of contact had an insignificant effect. The type of product probably accounts for this, because some products such as surgical dressings and enteral nutrition do not require maintenance or routine contact with the supplier. Detailed results of the satisfaction analysis are presented in Appendix B.

Our baseline analysis of beneficiary satisfaction is an important part of our overall evaluation. By providing a clear picture of satisfaction and quality measures prior to implementation of the demonstration, we will be better able to evaluate how the demonstration

Table 4-1. Beneficiary Ratings of Supplier Quality, Polk and Brevard Counties

	Oxygen Users (%)[a]			Other DMEPOS Users (%)[a]		
	Polk	Brevard	Both Counties	Polk	Brevard	Both Counties
Delivery of equipment after ordering						
Same day	74.5	75.1	75.0	44.3	45.5	44.9
1-2 days	22.3	22.0	21.9	36.3	37.4	36.9
3-4 days	2.5	1.5	2.0	9.2	11.0	10.1
Longer	0.7	1.5	1.1	10.2	6.1	8.1
Training						
Excellent	52.1	54.8	53.5	26.6	30.6	28.7
Very good	30.5	32.0	30.3	23.4	28.9	26.3
Good	12.5	8.5	10.5	13.3	13.3	13.3
Fair	2.0	2.7	2.4	5.8	3.3	4.5
Poor	0.2	0.2	0.2	1.4	0.3	0.9
None received	2.6	1.8	2.2	29.5	23.6	26.4
Frequency of home visits						
Once a week	3.5	2.9	3.2	6.4	2.4	5.0
Once every 2 weeks	6.8	3.5	5.1	1.9	1.4	1.6
Once a month	44.4	53.1	48.9	3.0	7.6	5.3
Once every 2 months	18.3	20.0	19.2	0.4	3.1	1.8
Once every 3-6 months	18.1	16.7	17.4	7.8	13.3	10.7
Never	8.9	3.8	6.3	80.5	72.2	75.6
Reliability of equipment						
Very reliable	93.3	95.4	94.4	73.4	84.0	79.0
Somewhat reliable	5.8	3.3	4.5	22.1	11.7	16.6
Somewhat unreliable	0.2	0.5	0.4	1.5	0.7	1.0
Very unreliable	0.7	0.7	0.7	3.0	3.7	3.3
Equipment replaced because						
It was not working right	21.3	25.4	23.4	15.7	12.1	13.8
Initiated a complaint during last 6 months	25.7	25.7	25.7	25.3	22.4	23.7
Complaint resolved satisfactorily	92.5	91.6	92.0	72.1	86.4	79.1
Needed after hours help	11.6	10.1	10.9	5.8	5.9	5.8
Received needed help	93.1	96.4	94.7	78.6	56.3	66.7

[a] Totals may not sum to 100 percent due to rounding.

affects these measures. Because the baseline satisfaction levels are already high, it is almost statistically impossible for the Competitive Bidding Demonstration to increase satisfaction ratings. Thus, if changes in satisfaction are to be observed, they are likely to be negative. Still, it is

possible that design features of the demonstration, such as quality evaluation of bidders and selection of multiple winners, will allow the high baseline levels of satisfaction and quality to be maintained during the demonstration.

We will repeat the beneficiary surveys approximately 1 year after the demonstration prices went into effect. We will then compare the responses from these surveys to the corresponding responses from the baseline surveys. Results from this comparison will be included in our Second Annual Evaluation Report.

4.2 *Design Features to Promote and Maintain Quality*

To address concerns that competitive bidding could reduce quality, the demonstration design included a number of features intended to maintain and promote quality:

- Multiple winners were selected in each product category. The multiple winners still have to compete among themselves to attract business; this competition can enhance quality and service levels. In Polk County, from four to 13 demonstration suppliers were selected in each product category.

- Quality was one of the key criteria used to select demonstration suppliers during the bid evaluation process. There was an initial evaluation of quality based on information provided in suppliers' bids. Then, after the competitive range was established on the basis of bid prices, the quality of suppliers in the competitive range was examined in detail. This examination considered references from patient referral agents and results from on-site visits to suppliers in addition to the information provided on bid applications.

- Quality and service standards were designed specifically for the demonstration. General standards for all suppliers specified standards for business hours, infection control, loaner equipment during rental repairs, delivery, set-up and pick-up, education and training for beneficiaries, emergency disaster procedures, complaint processing, and recordkeeping. Additional standards were set for each product category.

- A demonstration Ombudsman was assigned to work on-site in Polk County to respond to beneficiary complaints and concerns.

4.3 Site Visit Results

Once the demonstration was implemented, there were few initial reports of substantial changes in the quality of services or equipment. Two months after demonstration prices went into effect, the Ombudsman did not receive any complaints from beneficiaries regarding the quality of the equipment. However, after 2 months, referral agents were not as consistent with their reports. Some referral agents thought that the highest quality suppliers were included in the demonstration, while others did not. Not surprisingly, these perceptions were related to whether the referral agents previously used one of the demonstration suppliers. Referral agents who

previously used a demonstration supplier tended to believe that the highest quality suppliers were selected, while referral agents who did not already use one of the demonstration suppliers were less likely to hold this belief. In the first 2 months after the demonstration began, some referral agents received complaints from beneficiaries regarding new suppliers, while others did not. There was a period of adjustment where some referral agents had to work with new suppliers until they found one(s) with whom they were pleased. One home health agency voiced complaints about poor quality urological supplies. This home health agency had always provided patients with urological supplies from its own inventory and was used to dealing with a few, very reliable manufacturers. They reported catheters that had "disintegrated" and turned patients' urine blue. However, the issue with urological supplies is complex and is confounded by referral agents' frustration regarding the number of items allowable per month by Medicare. Because of issues unique to this product, we explored issues of price, access, and quality regarding urological supplies in greater detail (see Section 4.4).

In a focus group 6 months after the demonstration prices took effect, referral agents reported that, in general, quality had not been reduced as a result of the demonstration. All of those with whom we spoke were able to locate demonstration suppliers that provided good quality services and products. These agents reported no problems related to urological supplies.

Suppliers varied in their assessment of the demonstration's impact on the quality of products and services. Demonstration suppliers generally believed that quality is good, while nondemonstration suppliers expressed concerns that lower reimbursement will reduce quality. However, only one nondemonstration supplier (a urological supplier) was able to provide specific examples of beneficiaries who had sought this supplier's services after being dissatisfied with a demonstration supplier.

4.4 Urological Supplies

During interviews with urological suppliers, it was evident that the reimbursement for certain HCPCS codes does not adequately cover the cost of some products within that HCPCS code. One supplier showed us their acquisition cost for selected items and compared these with the reimbursement level; there was a discrepancy between the reimbursement level and their cost for a number of urological supplies. However, another supplier reported only a few items with costs higher than the demonstration reimbursement rate and said that reimbursement rates for other items were adequate. The number of products with acquisition costs higher than the demonstration reimbursement rate likely depends on the brands stocked by the supplier. One

supplier, who is also a manufacturer, did not have any difficulty with the demonstration prices and reported that their bid prices were actually lower than the demonstration levels.

Examples of the discrepancies between the cost of supplies and the reimbursement rate show that there is a significant disparity in some cases. The supplier that provided these examples primarily uses Mentor products. This supplier noted that a certain type of leg bag that some patients must use costs the supplier approximately $10 per bag, while the reimbursement is only about $4.80 per bag. Other leg bags are available at this reimbursement level, but they fit the leg differently and are not the best product for every patient. The supplier gave us other, less dramatic examples for items with disparities including external catheters, female intermittent catheters, and tubing for catheters.

It is surprising that demonstration prices are below costs for some products in some HCPCS codes because the demonstration prices are based on suppliers' bids. Bidding below cost would not appear to be a prudent strategy. However, all but one of the urological suppliers stated that they had bid much too low on some urological supplies. Some of the suppliers bid too low because they had little or no experience with urological supplies prior to the demonstration and, as such, had no past experience to inform their bid. They did not realize that the original fee schedule was not as inflated as it was for other demonstration categories. One of the suppliers explained the company's low bid by revealing that the individuals who submitted the bid were not the same people who deal with patients and so were unfamiliar with the issues of cost of and preferences for specific urological supplies.

The bidders' inexperience may have combined with product heterogeneity within some product codes to produce bids below cost for these codes. There is a wide variety of products available for some urological codes. Because the reimbursement level applies to a broad category of products regardless of material used or quality of item, the incentive is for the supplier to find the least expensive item in the category that would still provide the beneficiary with an acceptable level of quality. That incentive also existed prior to the demonstration. However, because urological supplies are very personal items, the patient often has brand and product preferences. Moreover, even within a single HCPCS code, some products may better match a patient's needs than another. The beneficiary can circumvent the supplier's incentive to provide an inexpensive product by asking the physician to prescribe a specific product. The prescribed item may be on the high end of cost for the HCPCS code; however, the supplier must provide the prescribed item regardless of price, while at the same time receiving the approved level of reimbursement. If a supplier services patients who use products above and below the price for the HCPCS, then on average, the supplier should come out even or ahead. However, if the

supplier has few patients and the majority of these patients have prescriptions for high-end products, the supplier loses money on that HCPCS code. All urological suppliers reported this scenario regarding some urological products. While suppliers have not had these difficulties with all urological product codes, some have had enough difficulty to raise concerns about meeting their operating expenses.

Suppliers added that because they must compete on quality they do not give beneficiaries substandard products, since in doing so they would lose customers. Suppliers admit to substituting lower priced products for higher priced products when possible, but claim that they only substitute products of equal quality. We asked the suppliers what brands they generally provided, and most of them reported using Mentor, Hollister, Bard, Medline, Kendal, Sherwood, and Rochester products; these are generally considered to be reputable brands. There is no evidence of systematically providing the patient with inferior products, and all suppliers emphasized that if a physician writes a prescription for a particular brand, they would provide the patient with this product regardless of the cost.

Overall, there does not seem to be a systematic problem regarding quality of urological products to beneficiaries residing in Polk County. There does, however, seem to be an issue of price that could lead to quality problems in the long run. The price issue may be resolved in the next round of bidding as suppliers adjust their bidding strategy based on their experience. We will continue to monitor the effects of the demonstration on urological supplies by analyzing the results of the beneficiary and supplier surveys, continuing to talk with urological suppliers and referral agents, and possibly by using claims data to determine if there is any increase in the incidence of urinary tract infections since the onset of the demonstration.

4.5 Product Selection

Our evaluation to date has uncovered no change in product selection in the oxygen, hospital beds, and enteral nutrition product categories. Our findings suggest that product selection of surgical dressings may have improved since the demonstration began. One surgical dressings supplier conducted a seminar on surgical dressings in Polk County where, in his opinion, wound care had previously been somewhat dated. During the seminar, this supplier introduced newer supplies and techniques. This supplier, who had not served Polk County prior to the demonstration, received a dramatic increase in referrals after conducting the wound care seminar. Product selection may have increased as a result of this supplier's participation in the bidding process.

At this time, it is unclear how product selection of urological supplies has been affected by the demonstration. As noted above, some suppliers have substituted lower priced products for higher priced products, but they claim that they only substitute products of equal quality. Referral agents on the whole have not observed suppliers systematically substituting products. Since patients can request a prescription that specifies a particular product that works for them, they are able to obtain products that meet their individual needs. If the physician specifies a particular product when writing the prescription, the supplier is obligated to provide that exact product. The number of patients with a prescription for a particular product varies by supplier; however, it is clear that patients who are aware of the products that work best for them are able to obtain these products. What is not as clear is whether patients who do not have prescriptions that specify a specific product brand are being given lower cost and/or lower quality products. Many beneficiaries may not know that they can change products if they do not meet their needs or request a specific brand by asking their physician to write a prescription for a specific product. These patients may perceive the demonstration as reducing product selection. However, we do not yet have data on the extent of this perception.

Given that the impacts of the demonstration may still be unfolding at this relatively early stage in its history, these results are preliminary. We will address the issue of quality of products and services throughout our evaluation of the demonstration. We will do this by continuing to interview referral agents and suppliers. In addition, we will conduct a follow-up survey of beneficiaries, which will provide information about perceptions of the quality of products and services from the user's perspective. A survey of suppliers will also be conducted, which will contain questions about whether changes were made in the products supplied.

4.6 Multiple Winners

Our findings support the conclusion that selecting multiple winners is having its intended effect on quality; that is, demonstration suppliers must still compete on the basis of service and quality in order to attract and retain patients. Several of the referral agents in our focus group noted that they had negative experiences with one or more of the demonstration suppliers. The referral agents explained that if the demonstration supplier made a number of mistakes or was not as accessible as they would have liked, they switched to a different demonstration supplier to obtain better service. They continued to refer patients to the company that provided the best services. This illustrates that suppliers must be responsive to the referral agents and patients or they will lose their referral sources. By the time of the focus group, all of the participating referral agents had found a demonstration supplier that they were satisfied with.

4.7 Summary and Next Steps

Reports of the quality of products and services during the demonstration varied. After 2 months of the demonstration, a few referral agents and beneficiaries noted that the quality of products and services fell, while most others stated that quality had remained the same. Some referral agents used new suppliers as a result of the demonstration, and in a few cases they were not pleased with the first demonstration supplier they called. If that happened, they switched suppliers. All of the referral agents who participated in a focus group 6 months after the demonstration prices took effect had found demonstration suppliers that they were satisfied with. Overall, there is no evidence of systematic quality problems.

It is too early to tell whether the demonstration will have any long-run effects on quality. Additional site visits and calls to key individuals and organizations in Polk County will enable us to continue to monitor reports regarding any detrimental effects of the demonstration on the quality of products and services before and after the demonstration prices took effect. We will pay particular attention to urological supplies. As with the evaluation of access to needed services, the evaluation of quality will continue with an analysis of a follow-up survey of beneficiaries and another of suppliers, which will enable us to compare ratings of quality during the demonstration.

SECTION 5
COMPETITIVENESS OF THE MARKET

In this section, we discuss the effects of the demonstration on the competitiveness of the DMEPOS market in Polk County. The process of selecting winners may substantially reduce the number of suppliers that serve the Polk County market. In order for the second round of bidding to be successful, there must be a sufficient number of bidders left in the market to induce competitive bids.

The effects of the demonstration on suppliers are also obviously of interest to suppliers themselves. DMEPOS suppliers generally opposed competitive bidding prior to the demonstration project, and a supplier organization filed suit seeking an injunction against the demonstration. The suit, based on procedural issues, was ultimately dismissed. The impact of the demonstration on suppliers and its impact on suppliers' feelings about competitive bidding will likely shape suppliers' attitudes for future policy discussions about competitive bidding.

We begin by discussing the number and size of bidders pre- and post-demonstration implementation, bidding strategies, and the strategies of winning bidders. We then report on industry changes such as acquisitions and bankruptcy filings that have occurred since the start of the demonstration project and discuss the results of the site visits that pertain to suppliers' concerns about industry competitiveness. Finally, we present recommendations to be considered in the next Competitive Bidding Demonstration and outline future analyses of the competitiveness of the Polk County DMEPOS market. The key findings in this section are as follows:

- A total of 30 suppliers submitted bids in at least one of the product categories. Sixteen suppliers, both large and small firms, were selected as winners. The most common winning strategy was to vary the percentage discount across most procedures in a product category.

- Few suppliers adopted a bidding strategy that lowered prices for all items by the same percentage, relative to the existing fee schedules. Instead, most bidders cut prices for individual items by varying percentages. Indirectly, this result suggests that relative prices for DMEPOS are not accurately reflected in the existing Florida fee schedule.

- A nondemonstration supplier has acquired two demonstration suppliers. It is unclear whether these acquisitions are directly related to the demonstration. Demonstration suppliers were concerned about the ability of nondemonstration suppliers to obtain demonstration status through acquisitions.

- The parent companies of one nondemonstration supplier and one demonstration supplier have filed for bankruptcy. Another demonstration supplier has also filed for

bankruptcy protection. These events do not appear to be directly related to the demonstration, and the suppliers continue to serve the demonstration site.

- Increases in volume for demonstration suppliers were less than suppliers expected, partially because expectations may have been too high, and partially because many nondemonstration suppliers chose to continue serving existing patients under the demonstration's transition policies. HCFA should stress in future demonstrations that volume is not guaranteed and present information on volume effects for demonstration suppliers based on the Polk County experience.

- Our analysis in the access and quality sections of the evaluation suggests that demonstration suppliers will still need to compete on the basis of service and quality to attract new patients. Referral agents select suppliers on the basis of these characteristics. Some referral agents have tried new suppliers as a result of the demonstration; if the initial demonstration supplier did not provide satisfactory service and quality, the referral agents switched to another demonstration supplier.

- Demonstration suppliers were concerned about nondemonstration suppliers serving as brokers by continuing to take referrals from referral agents and then referring the patients to a demonstration supplier of their choosing. This practice, while not in violation of the demonstration rules, may not be positive for beneficiaries and has been addressed by the Ombudsman.

- Demonstration suppliers were concerned about demonstration suppliers using nondemonstration suppliers as subcontractors. While subcontracting is permitted under the rules of the demonstration, it does not appear to be a common practice. The level of subcontracting has been limited in the next demonstration site.

5.1 *Number and Size of Suppliers Before Demonstration*

In 1997, there were a total of 321 DMEPOS suppliers serving Polk County beneficiaries in at least one of the five demonstration product categories (Table 5-1). The number of suppliers serving individual product categories ranged from 61 for enteral nutrition to about 120 for both hospital beds and oxygen supplies. However, many of the suppliers had a very small presence in Polk County. More than half of the suppliers had less than $1,000 in allowed charges for Polk County beneficiaries; some of these were probably out-of-county suppliers providing equipment and supplies to Polk County beneficiaries traveling outside the county. Only 148 and 42 suppliers had over $1,000 and $10,000, respectively, in total combined allowed charges in Polk County for the five demonstration product categories. These figures may provide the most accurate picture of the supplier side of the market at the time the bidding occurred.

Table 5-1. Number and Size of Suppliers in Polk County in 1997

Product Category	$1M or More	$500K to $1M	$250K to $500K	$100K to $250K	$50K to $100K	$10K to $50K	$1K to $10K	$0 to $1K	Total Suppliers	Allowed Charges
Oxygen Supplies	2	1	3	5	1	6	62	43	123	$7,615,505
Hospital Beds and Accessories	0	0	0	2	2	10	19	89	122	$587,679
Enteral Nutrition	0	0	1	0	7	12	28	13	61	$1,268,458
Urological Supplies	0	0	0	0	0	3	15	52	70	$116,156
Surgical Dressings	0	0	0	1	0	2	14	49	66	$212,245
Total for all Five Categories	2	1	5	5	10	19	106	173	321	$9,800,043

5.2 Number of Bidders

A total of 30 suppliers submitted bids in one or more product categories (Table 5-2a). There were a total of 73 bids across the five product categories (Table 5-2b). Three suppliers bid on all five product categories, while seven suppliers bid on only one product category; the remaining 20 suppliers bid on two, three, or four product categories. More suppliers (23) bid on oxygen than any other product category; surgical dressings and urological supplies received the fewest bids, receiving eight and nine bids, respectively. Probably not coincidentally, oxygen accounts for the most allowed charges and surgical dressings and urological supplies account for the least allowed charges among the five product categories.

Table 5-2a. Number of Suppliers that Bid

Number of Categories	Number of Firms	Percent
All five categories	3	10%
Four categories	1	3%
Three categories	9	30%
Two categories	10	33%
One category	7	23%
Total	30	100%

Table 5-2b. Number of Bids by Product Category

Category	Number of Bids
Oxygen Supplies	23
Hospital Beds and Accessories	19
Enteral Nutrition	14
Urological Supplies	9
Surgical Dressings	8
Total	73

Overall, just over half of the bidders in each product category won a contract. Specifically, 13 of 23 bidders for oxygen supplies, 10 of 19 bidders for hospital beds and accessories, 7 of 14 bidders for enteral nutrition, 5 of 9 bidders for urological supplies, and 4 of 8 bidders for surgical dressings won a contract (Table 5-3).

Table 5-3. Number of Bidders, Winners, and Composite Bids by Product Category

	Oxygen Supplies	Hospital Beds and Accessories	Enteral Nutrition	Urological Supplies	Surgical Dressings
Number of Bidders	23	19	14	9	8
Number of Winners	13	10	7	5	4
Winners as Percentage of Bidders	57%	53%	50%	56%	50%
Approximate Range of Composite Bids as a Percentage of the Florida Fee Schedule[a]	65–105%	45%–100%	60%–105%	65%–145%	35%–105%
Composite Prices:					
Demonstration Fee Schedule	161.75	90.72	62.59	8.86	13.82
Florida Fee Schedule	195.99	129.26	86.02	11.07	15.80

[a] Based on RFP product weights.

Suppliers with both large and small market shares in Polk County submitted bids. Of the 42 suppliers with over $10,000 in allowed charges in the county in 1997, 14 submitted bids (by 1999, a few of the top 42 suppliers had merged or gone out of business). The remaining 16 bidders had less than $10,000 in allowed charges in 1997. Suppliers with large and small market shares that submitted bids were about equally likely to be selected as demonstration suppliers. Seven of the 14 bidders with over $10,000 in Polk County allowed charges were selected as demonstration suppliers, while nine of the 16 bidders with less than $10,000 in allowed charges were selected. Three of the four national DMEPOS companies either did not bid or were not selected as demonstration suppliers; two of these companies had large Polk County market shares before the demonstration.

5.3 Bidding Strategies

During site visits, suppliers reported that they determined their bids by examining their costs of providing services, the prices they had bid on other contracts, and how long their equipment would be used. They also compared the reimbursement from different payers, including Medicare, Medicaid, and the VA. Our analysis of individual suppliers' bids suggests that bidding strategies varied among suppliers. The strategies can be categorized as follows:

- bid the existing fee schedule for all procedures,
- bid a uniform percentage discount of the fee schedule on all procedures (e.g., bid 20 percent less than the existing fee schedule for all procedures),

- bid a uniform (usually discounted) percentage of the existing fee schedule on more than 70 percent of (but not all) procedures, and
- varied the percentage reduction on more than 30 percent of the procedures.

The number of suppliers who used each of these strategies is listed in Table 5-4. One supplier bid the existing fee schedule for oxygen supplies, hospital beds and accessories, and enteral nutrition. This supplier also bid the existing fee schedule except for two items in surgical dressings and one item in urological supplies. Overall, the existing fee schedule was bid by one other supplier of oxygen supplies and another supplier of hospital beds and accessories. Two oxygen suppliers and three hospital bed suppliers bid uniform discounts on the existing fee schedules. Several suppliers bid a uniform reduction on more than 70 percent of the items but varied bids on some of the remaining 30 percent of the items. However, the most frequently used strategy was to vary the discount for most procedures. The majority of bidders in each product category used this strategy.

Table 5-4. Bidding Strategy by Product Category

	Oxygen Supplies	Hospital Beds and Accessories	Enteral Nutrition	Urological Supplies	Surgical Dressings
Bid fee schedule	2	2	1	0	0
Bid uniform percentage of fee schedule on all products	2	3	0	0	0
Bid uniform percentage of fee schedule on at least 70 percent but not all products	3	4	3	3	2
Varied bids on more than 30 percent of products	16	12	10	6	6
Total number of bids	23	19	14	9	8

It is not clear why a few bidders bid the existing fee schedule. It is possible that these suppliers felt the current fee schedule provides an accurate measure of the underlying costs of providing the products in each product category. Alternatively, these bidders may have hoped that only a few competitors would bid, allowing them to gain demonstration status without having to lower their prices.

Bidding a uniform percentage discount for all procedures is a relatively simple strategy for bidders to apply. If the existing fee schedule provides an accurate measure of the relative costs of each procedure (e.g., if procedure A costs twice as much as procedure B, then the existing fee for

procedure A is twice the fee for procedure B), bidding a uniform percentage discount is also an optimal strategy because relative cost differences are already built into the existing fee schedule. Indeed, if the existing fee schedule provides an accurate measure of relative costs, then competitive bidding could be simplified by requiring bidders to submit a single discount bid or conversion factor to be applied to the existing fee schedule, rather than submitting individual bids for each procedure in the product category. The fact that most bidders did not adopt the uniform percentage discount strategy provides indirect evidence that the current fee schedule does not accurately reflect the relative costs of procedures.

5.4 Winners

Composite bids for oxygen supplies and enteral nutrition ranged from about 60 to 105 percent of the composite bid based on the 1999 Florida fee schedule (see Table 5-3). Composite bids for hospital beds and accessories were slightly lower, ranging from approximately 45 percent to 100 percent of the composite bid based on the Florida fee schedule. The minimum bid for urological supplies was about 65 percent of the fee schedule composite, and the maximum bid was about 145 percent of the fee schedule composite. Composite bids for surgical dressings ranged from about 35 percent to about 105 percent of the fee schedule composite.

The strategies used by winners are displayed in Table 5-5. There were no winners among the suppliers that bid the existing fee schedule. Only one of the bidders that bid a uniform discount on the fee schedule was chosen as a winner. Two winners in oxygen supplies and enteral nutrition varied their bids on up to 30 percent of the products but bid a uniform percentage discount on other procedures. Three winners in the hospital beds and accessories category and one winner in the urological supplies category successfully pursued this mixed strategy. Most winners varied the discount on more than 30 percent of the procedures. Of course, regardless of strategy, bidders had to bid sufficiently low to be selected as a winner.

5.5 Changes Since the Demonstration

Several changes have occurred in the competitive environment in Polk County since the demonstration prices took effect on October 1, 1999. A nondemonstration supplier has acquired two demonstration suppliers, and one nondemonstration and two demonstration suppliers have filed for bankruptcy protection. The acquisitions may or may not be related to the demonstration, while the bankruptcies are unrelated to the demonstration.

Lincare Holdings, Inc., has acquired two demonstration suppliers, Home Care Medical Services and VNA Homecare. Lincare, one of the nation's largest providers of oxygen and

Table 5-5. Bidding Strategy of Winners by Product Category

	Oxygen Supplies	Hospital Beds and Accessories	Enteral Nutrition	Urological Supplies	Surgical Dressings
Bid fee schedule	0	0	0	0	0
Bid uniform percentage of fee schedule on all products	1	0	0	0	0
Bid uniform percentage of fee schedule on at least 70 percent but not all products	2	3	2	1	0
Varied bids on more than 30 percent of products	10	7	5	4	4
Total number of bids	13	10	7	5	4

respiratory therapy to in-home patients, was not initially selected as a demonstration supplier, but was granted demonstration status after acquiring Home Care Medical Services. It is not clear whether Lincare's acquisitions are directly related to the demonstration project. Although acquisition of a demonstration supplier could be attractive to a nondemonstration supplier, the acquisitions may be part of Lincare's stated business strategy to acquire market share nationally through both internal growth and acquisition of local and regional competitors. In 1997, Lincare acquired 16 local and regional competitors throughout the country and the common stock of 8 others; in 1998, Lincare acquired 12 local and regional competitors and the common stock of 12 others; and in 1999, Lincare acquired 18 local and regional competitors and the common stock of 4 others (Lincare Holdings, Inc., 1999, 2000). Nationally, Lincare has over 225,000 patients, 429 operating centers, and operates in 42 states.

On February 2, 2000, Integrated Health Services and many of its subsidiaries, including Rotech Medical Corporation, which is a not a demonstration supplier but provides DME services in Polk County under the name of National Medical Equipment Centers, filed for bankruptcy in the District Court of Delaware. Integrated Health Services provides home respiratory services, subacute care, long-term care, and contract rehabilitation service. Inpatient service is the company's largest source of revenue, but it also has 750 locations that provide home respiratory services and DME in 43 states. In its annual report, Integrated Health Services (2000) attributed its need to file for bankruptcy protection to the BBA 97 change from retrospective reimbursement rates to a prospective payment system for SNFs. As a result, the per diem rates fell lower than expected and the demand for therapy services declined. Integrated Health Services has

experienced net losses since 1997. National Medical Equipment Centers continue to provide DME services in Polk County.

Sun Healthcare Group, of which SunFactors, a demonstration supplier, is a subsidiary, announced that it and its U.S. subsidiaries had filed for bankruptcy in October 1999 in the District Court of Delaware (Sun Healthcare Group, 1999). Sun Healthcare Group operates long-term, subacute care, and assisted living facilities, provides rehabilitation and respiratory therapy, pharmaceutical and medical supplies, and ancillary services. Like Integrated Health Services, Sun Healthcare Group reported that its revenues were adversely affected by the implementation of the prospective payment system for skilled nursing facilities and a greater than expected decline in the demand for therapy and pharmaceutical services. SunFactors continues to provide DME services in Polk County.

Medi-Health Care, a demonstration supplier, filed for bankruptcy protection in March 2000 (The Lakeland Ledger, 2000). The filing appears to be unrelated to the demonstration, and the supplier continues to provide DME services in Polk County.

5.6 Site Visits Results

We met with suppliers during each of our four site visits to Polk County. The four site visits centered on, respectively,

- bid decisions and strategies;
- implementation of the demonstration project, from announcement of demonstration suppliers through the first 2 months after the demonstration prices took effect;
- a focus group discussion of the first 6 months after the demonstration prices took effect; and
- urological supplies.

Below, we describe results of the site visits to suppliers that pertain to the competitiveness of the market. Other findings from the supplier visits are reported in Sections 3, 4, and 6.

During the first site visit, which was conducted after bids had been submitted but before demonstration suppliers were announced, the suppliers who bid were optimistic and excited about their business prospects if chosen as demonstration suppliers. Most felt that if they were chosen as demonstration suppliers, their increased market share would more than offset lower reimbursement rates. All bidding suppliers were certain that their business would suffer if they were not selected as a winner. However, most said that they would be able to stay in business if they did not win because the first round of the demonstration was a relatively short period of time. (In contrast, when asked why they bid, most of the same suppliers said they would go out

of business if they did not bid.) Several bidding suppliers planned to expand into other counties if they were not selected as demonstration suppliers.

Of the suppliers that did not bid, one did not bid because Medicare comprised a small proportion of their business. They felt that the paperwork was not worth the trouble. Another supplier said that they did not bid because they felt that competitive bidding was philosophically wrong and that it would harm their patients. Some suppliers that bid speculated that other suppliers had passed on bidding because they expected that FAMED's lawsuit would block implementation of the demonstration. We were unable to confirm or disprove this speculation.

After being selected as demonstration suppliers, most of the suppliers prepared for a dramatic increase in volume. Suppliers anticipated cost reductions from manufacturers and looked to renegotiate contracts with manufacturers based on higher volumes. The manufacturers were responsive and wanted to get involved in the demonstration. Several suppliers increased equipment, supplies, and personnel; one supplier designated a driver to serve Polk County exclusively. Another supplier prepared a series of new operating policies for the demonstration; some of these policies focused on how to handle transfers of bed and oxygen customers. Most suppliers also worked to educate referral agents and beneficiaries about the demonstration. Only one supplier reported doing nothing special to prepare for the demonstration.

All of the suppliers expected their volume to increase once the demonstration began. Three suppliers prepared for a short-term increase in volume of about 20 percent and a long-term increase in volume of about 40 percent. However, because of the novelty of the demonstration, suppliers were uncertain about the magnitude of the increase. HCFA may have inadvertently heightened expectations about volume increases by calling demonstration suppliers just prior to October 1 to check on supplier preparations for implementation.

Most demonstration suppliers did not notice major changes in volume when the demonstration rules went into effect on October 1, 1999. Nondemonstration suppliers elected to continue serving existing patients under the demonstration's transition policies for oxygen, hospital beds, and enteral nutrition, reducing the demand for demonstration suppliers. Six months after the demonstration prices went into effect, three of the seven demonstration suppliers in our focus group reported significant increases in volume, three suppliers reported no change in volume, and one supplier had not studied the data on volume increases. One of the suppliers reporting an increase felt that the volume increases were less than expected, in part because initial expectations were too high. Some suppliers suggested that HCFA should stress that volume is not guaranteed in future demonstrations.

During our second and third site visits, several demonstration suppliers expressed strong concerns about what they viewed as questionable practices by nondemonstration suppliers. The demonstration suppliers reported the following:

- Nondemonstration suppliers were serving as brokers by continuing to take referrals from referral agents and then referring the patients to a demonstration supplier of their choosing.
- Demonstration suppliers were using nondemonstration suppliers as subcontractors.
- One nondemonstration supplier bought a demonstration supplier and was able to attain demonstration status.

Most of the demonstration suppliers thought that these practices were unfair and violated the spirit, if not the rules, of the demonstration. The demonstration suppliers believed that they had played by the rules of the demonstration, had submitted low bids that saved HCFA money, and should have been rewarded for their efforts by receiving more business. They viewed the nondemonstration suppliers' practices as circumventing the spirit of the demonstration and, in the process, limiting the ability of demonstration suppliers to obtain new business. Demonstration suppliers also felt that HCFA had not been responsive to their concerns about these practices and either had not been clear about or had not aggressively enforced the rules of the demonstration.

For several reasons, the demonstration suppliers' concerns are worth addressing in detail. Demonstration suppliers' opinions are likely to affect the credibility of the demonstration among other suppliers and influence the industry's overall acceptance of or opposition to competitive bidding. Moreover, demonstration suppliers may provide important contributions to the "lessons learned" from the demonstration. One of the purposes of a demonstration project for a new reimbursement mechanism is to allow HCFA to learn from its experience and refine the mechanism based on that experience. Some of the nondemonstration supplier behaviors at issue apparently were unanticipated by HCFA, and HCFA and its contractor have responded, in part by further developing policies for future demonstration sites. When we looked at the demonstration suppliers' concerns and HCFA's response to those concerns, here is what we found.

First, one nondemonstration supplier confirmed that it had tried to maintain its existing relationship with referral agents. When referral agents called this supplier, the supplier provided any nondemonstration products that were required; it then referred requests for demonstration products to a demonstration supplier. This is the type of relationship that demonstration suppliers viewed as a "brokering" arrangement; the nondemonstration supplier viewed using this approach to specialize in nondemonstration products as a way to survive until the demonstration ended. The arrangement does not appear to violate any demonstration rule. When the Ombudsman was

informed of the arrangement, she visited with referral agents to point out that the practice might be less advantageous for beneficiaries than a direct referral to a demonstration supplier. For example, demonstration suppliers would be more accountable for service and product quality to the original referral agent if they received direct referrals than if the referral came indirectly from a nondemonstration supplier. After discussion with the Ombudsman, referral agents affiliated with at least one hospital switched from indirect to direct referrals. Besides ensuring that the referrals were not accompanied by side-payments between the demonstration and nondemonstration suppliers, we do not believe that HCFA could have done anything else to discourage "brokering" arrangements, given the existing demonstration rules. We also believe that it will be difficult to explicitly ban "brokering arrangements" in future demonstrations.

Both the Ombudsman and our evaluation team investigated reports of demonstration suppliers subcontracting to nondemonstration suppliers. Subcontracting is explicitly allowed under the rules of the demonstration, with the demonstration supplier responsible for the quality and service of its subcontracting, and occasional subcontracting occurs in other DME markets. Overall, however, subcontracting appears to be relatively uncommon in Polk County. HCFA's Ombudsman found that none of the demonstration suppliers were subcontracting 6 months after the demonstration began, although one demonstration supplier had subcontracted some business to a nondemonstration supplier earlier in the demonstration. The demonstration supplier had previously worked with the nondemonstration supplier on managed care contracts. Our evaluation team reached similar conclusions about the prevalence of subcontracting. Although subcontracting does not appear to be common in Polk County, HCFA has reacted to the Polk County demonstration suppliers' concerns by limiting the amount of subcontracting allowed in the second demonstration site in San Antonio. The following rules will apply in San Antonio:

> "The Demonstration Supplier may not routinely subcontract its business for Designated Products. However, the Demonstration Supplier may subcontract business for Designated Products when needed because of problems with product availability, transportation or service. For each product category, subcontracting can account for no more than five percent of the Demonstration Supplier's claims."

The rules of the demonstration specifically allow for mergers or acquisitions between demonstration and nondemonstration suppliers, with demonstration status transferrable to the merged or acquiring entity as long as the entity meets all demonstration quality requirements and is approved by HCFA. In designing the demonstration, HCFA opted for this approach to guarantee that beneficiaries would continue to have access to demonstration suppliers if a merger

or acquisition occurred and to give demonstration suppliers the same ability to merge or be acquired as they would have in the absence of the demonstration (mergers and acquisitions are common in the DMEPOS industry).

In deciding whether to approve demonstration status for the acquiring supplier, HCFA considered the acquisition's likely effect on beneficiary access and whether the acquisition was fair to demonstration suppliers, including the demonstration supplier that wanted to sell itself as well as other demonstration suppliers. Ultimately, HCFA approved demonstration status for the acquiring firm. Given the demonstration rules, HCFA acted appropriately in approving demonstration status for the acquiring supplier in Polk County, after the supplier met demonstration quality requirements and standards. However, in setting the rule on acquisitions and mergers, HCFA did not anticipate that a supplier with a large market share in the demonstration site would fail to win demonstration status in the bidding competition, and then gain the status through acquisition. We believe that it is understandable that other demonstration suppliers would view this result as unfair, after they successfully completed the bidding process by offering HCFA low prices and meeting quality standards. In addition, we believe that allowing transferability of demonstration status may cause some suppliers to bid less aggressively because, if they lose, they still have the option of getting into the demonstration by acquiring a demonstration supplier. Of course, the supplier would have to pay acquisition costs that might offset any gain from not bidding aggressively in the first place.[1] Because the less aggressive behavior could lead to higher demonstration prices, we believe it would be worthwhile for HCFA to reexamine the issue of transferability of demonstration status. This reexamination would carefully weigh the benefits of transferability (maintaining access, allowing suppliers to freely buy or sell their firms), against the potential costs (less aggressive bidding). Besides the extreme options of no transferability and complete transferability, HCFA could consider intermediate options such as allowing transferability on a case-by-case basis when the transfer is necessary to maintain beneficiary access or allowing an acquiring nondemonstration supplier to serve the demonstration supplier's current patients but not accept any new patients under the demonstration.

Although HCFA and the Ombudsman appear to have investigated demonstration suppliers' concerns about arrangements involving nondemonstration suppliers, some demonstration suppliers continue to feel HCFA has been unresponsive. This perception may

---

[1]With transferability, some suppliers may actually bid more aggressively, in order to be able to sell their firm (and demonstration) status to suppliers who bid less aggressively because of transferability. Such behavior might partly offset higher bids from the suppliers who bid less aggressively.

reflect dissatisfaction with HCFA policies or the outcome of the investigations and/or it may reflect communication problems between HCFA and its winning suppliers. Regardless of its cause, the perception may in turn negatively affect other DMEPOS suppliers' opinions about competitive bidding and hurt the credibility of the demonstration. Both results could limit HCFA's ability to implement competitive bidding on a wider scale, if the demonstration is otherwise successful. To address the demonstration suppliers' perceptions, we recommend that HCFA staff meet with demonstration suppliers to hear suppliers' concerns firsthand. Although the demonstration Ombudsman has met with the demonstration suppliers and relayed their concerns to HCFA staff, and HCFA staff have met via telephone with a few individual suppliers, meeting with a group of demonstration suppliers would further demonstrate that HCFA takes the suppliers' concerns seriously by letting the suppliers meet directly with the HCFA staff responsible for setting the rules of the demonstration. During the meeting, HCFA could explain what it and its contractor have done to investigate the suppliers' concerns. HCFA and the demonstration suppliers could then discuss potential remedies for these concerns in future demonstrations.

Some demonstration suppliers' concerns about arrangements involving nondemonstration suppliers appear to be intimately entwined with smaller than expected increases in volume from the demonstration. Our evaluation suggests that subcontracting by demonstration suppliers and referral brokering by nondemonstration suppliers is uncommon and has therefore had little overall impact on the number of patients using demonstration suppliers. The impact of Lincare's acquisition of two demonstration suppliers on other demonstration suppliers' market shares requires further study. Overall, however, it appears that suppliers' initial expectations about the market share to be immediately gained from demonstration status were too high.

Therefore, in future competitive bidding demonstrations, we recommend that HCFA provide information about volume effects for winning suppliers, based on the Polk County experience. In the RFB and the Bidders Conference for Polk County, HCFA properly emphasized that it could not guarantee that winning bidders would receive a specific volume of patients. Because the demonstration had never occurred before, both HCFA and suppliers faced great uncertainty about the number of new patients that demonstration suppliers would receive. It appears that some suppliers may have overestimated the number of new patients. With the data from Polk County in hand, HCFA can now provide potential bidders with better information about the potential volume for demonstration suppliers. Specifically, HCFA can note the following, at least in Polk County:

- Most, if not all, nondemonstration suppliers continued to serve existing oxygen, hospital bed, and enteral nutrition patients under the demonstration's transition

policies. As a result, demonstration suppliers are unlikely to experience a huge increase in demand on the day that the new demonstration prices go into effect.

- Over time, volume for demonstration suppliers as a whole will increase, as referral agents refer new patients to demonstration suppliers. Thus, being a demonstration supplier will open some doors for demonstration suppliers, as some referral agents will be willing to try a demonstration supplier for the first time.

- Demonstration suppliers must be ready to take advantage of these opportunities by providing high levels of quality and service. Based on both the supplier comments and referral agent focus groups, it is clear that referral agents in the demonstration look for the same thing they look for in the absence of the demonstration: prompt delivery, reliability, and responsiveness. If a demonstration supplier cannot deliver these attributes, they are unlikely to receive additional referrals.

- It is possible that the first referral that a demonstration supplier receives from a new referral agent will come under trying circumstances (e.g., at the end of the day, on a weekend, etc.). Successful performance under these circumstances may lead to additional referrals; unsuccessful performance may cause the referral agent to use other demonstration suppliers.

In short, although demonstration status can open new opportunities for suppliers, demonstration suppliers will still need to compete for referrals the same way they have always competed for referrals: with service and hard work.

5.7 Summary and Next Steps

Currently, it appears that the DMEPOS market in Polk County remains reasonably competitive. A total of 30 suppliers submitted bids and 16 were selected as demonstration suppliers in at least one product category. Both small and large firms bid successfully, usually using strategies that varied prices for most procedures. There have been additional changes in the market since the demonstration began. One nondemonstration supplier acquired two demonstration suppliers, but it is unclear whether these acquisitions are directly related to the demonstration. One demonstration supplier and the parent companies of one demonstration and one nondemonstration supplier have filed for bankruptcy protection, but these filings appear to be unrelated to the demonstration, and the suppliers continue to provide DMEPOS in Polk County.

Increases in volume for demonstration suppliers were generally lower than many suppliers expected. Expectations may have been too high initially. HCFA should be able to provide better information on volume effects in future demonstrations, based on the Polk County experience. Demonstration suppliers were concerned about acquisitions by and brokering and subcontracting arrangements involving nondemonstration suppliers. These arrangements do not appear to violate demonstration rules; nevertheless, the arrangements stirred a lingering controversy, with

demonstration suppliers desiring more direct communication with HCFA about policy governing the arrangements.

We will continue to evaluate the competitiveness of the market throughout the demonstration. During the next year, we will conduct a supplier survey to gain further insight into the effect of the demonstration on supplier competition. We intend to analyze the results of the survey in conjunction with claims data when the data become available. Both the claims and survey data will be collected in Polk County and the comparison county. These data will allow us to characterize the supplier market in both the pre- and post-intervention periods and to evaluate the changes that have occurred in the local market. Specifically, we will make pre- and post-intervention comparisons of the

- number of suppliers providing each product type;
- number of suppliers who are local or from beyond the market;
- share of demonstration products relative to the suppliers' total business;
- market competitiveness by product type;
- relative market shares of small, medium, and large suppliers, by product category; and
- financial status of suppliers.

Data from the comparison county will help distinguish the effects of the demonstration in Polk County from general trends that affect both Polk County and other areas. We will also collect information on competitiveness during future site visits to Polk County.

SECTION 6
REIMBURSEMENT SYSTEM

In the first year of the evaluation, we have devoted considerable effort to understanding and documenting the *process* of implementing the competitive bidding reimbursement system. We considered questions such as the following:

- How were interested parties notified of the new system?
- What efforts were made to educate beneficiaries, referral agents, and suppliers on how to "navigate the system?"
- How was the bidding process managed?
- How were winners selected?
- What administrative changes were made to accommodate the new payment system and how is system and supplier performance being monitored?

Detailed documentation of the process will assist HCFA in replicating the demonstration as well as determining what aspects of the demonstration were most successful and what improvements might be made.

The key findings in this section are as follows:

- Competitive bidding can be successfully implemented.
- HCFA and its contractor exerted major efforts to educate beneficiaries, suppliers, and referral agents about the demonstration.
- The information included about the demonstration in the RFB and Bidders Conference was useful to suppliers.
- The bid evaluation process did not simply focus on price; supplier capacity and quality were carefully considered during this process. The demonstration contractor has proposed methods for streamlining the bid evaluation process.
- Demonstration claims are being processed smoothly.
- The presence of an on-site Ombudsman has greatly facilitated implementation of the demonstration.

6.1 Publicity, Solicitation, and Education

HCFA and its contractor undertook a series of efforts to publicize the demonstration and educate stakeholders about its rules and implications. Separate publicity and education efforts

were aimed at beneficiaries, beneficiary advocacy groups, suppliers, referral agents, secondary insurers, and nursing homes. Below, we describe the efforts aimed at each group.

- **Beneficiaries**—A public meeting was held in Lakeland in September 1998 describing the demonstration. This meeting was publicized in the local papers and on the HCFA web site. A letter explaining the demonstration was sent to beneficiaries in Polk County (August 4, 1999). This letter contained a short brochure, "The Medicare DMEPOS Competitive Bidding Demonstration and You," that outlined why HCFA was undertaking the demonstration, what the changes will mean for beneficiaries, how competitive bidding works, and how Medicare will protect beneficiaries. A follow-up letter and a copy of the demonstration directory of providers were sent immediately prior to October 1, 1999, when the demonstration prices took effect. Presentations at local gatherings (e.g., AARP groups) were made to provide opportunities for open questions and answers. In addition, three separate articles appeared in the Lakeland and Tampa newspapers in the late summer discussing the demonstration. A "hotline" was set up to allow the local Ombudsman to answer beneficiary questions. Numerous beneficiaries have used this hotline to discuss the implications of the demonstration for their healthcare needs. For example, in the months leading up to the demonstration (August, September 1999), the Ombudsman received 295 calls from beneficiaries. While the number of calls has declined somewhat since this peak (110 beneficiary calls in October; an average of 41 calls per month since then), the hotline remains an important avenue for beneficiaries to obtain immediate and personal attention to their questions and their complaints. New Medicare beneficiaries are identified quarterly and sent materials on the demonstration.

- **Beneficiary Advocacy Groups**—A letter was sent in May 1998, inviting beneficiary groups to a meeting to discuss the demonstration (held on May 29, 1998). The on-site Ombudsman also made a number of presentations to local groups (e.g., AARP, Better Breathers—a group of oxygen users, neighborhood associations, etc.).

- **Suppliers**—A letter was sent in April 1998 to all suppliers submitting DMEPOS claims for Polk County beneficiaries in the previous 18 months, informing them of the demonstration. A separate letter was sent in June 1998, inviting approximately 150 local suppliers to a meeting in Lakeland to discuss the demonstration. On February 9, 1999, an announcement of the upcoming demonstration appeared in the *Commerce Business Daily*. This announcement explained the purpose of the competitive bidding demonstration and provided information on the upcoming bidding process, including contact information for obtaining an RFB package. Suppliers who received Medicare reimbursement for DMEPOS delivered in Polk County in 1997 received a letter (dated January 29, 1999) notifying them of HCFA's intent to solicit bids. The RFB, detailed instructions, and information regarding the Bidders Conference were sent out to all persons requesting these documents. A Bidders Conference was held 1 month before the bids were due to review bid procedures and answer technical questions. HCFA staff held a general debriefing with suppliers to discuss the results of the bid evaluation process. The on-site presence of the Ombudsman allowed the Ombudsman to personally visit suppliers to discuss the demonstration and answer technical questions both before and after the demonstration prices took effect.

- **Referral Agents**—Letters were sent to referral sources in August 1999 describing the demonstration, announcing that demonstration winners had been selected, and indicating that a directory would soon follow. In-service meetings were scheduled in

mid- to late-August with hospital discharge planners, and one-on-one meetings were also scheduled with administrators of home health agencies and large physician groups to provide referral agents with detailed information concerning the demonstration, including a draft list of demonstration winners. Directories listing demonstration providers, their services, and service areas were sent to these agents in early October. The on-site Ombudsman continued to meet with referral agents after the demonstration began.

- **Secondary Insurers**—A general notification letter on the project and prices was sent to Medicaid, Medigap, and other insurers (August 13, 1999).

- **Nursing Homes**—A letter explaining the demonstration was sent to nursing homes on August 4, 1999. These providers were asked to indicate the supplier(s) they intended to use by August 23, 1999.

While most stakeholders were generally satisfied with the publicity, solicitation, and education efforts of HCFA and its contractor, one issue did arise during interviews with suppliers regarding the Supplier Directory. Because the Directory was compiled from bid information and not previewed by the suppliers to assure accuracy and comparability of information, some suppliers had their office hours listed as "24 hours" because someone is always on call, while others only had the hours that their office was open listed (e.g., 8:00-5:30). A number of suppliers felt that having office hours listing as "24 hours" was misleading, because the offices were not technically open 24 hours, and all suppliers are required to have someone on call 24 hours a day. In addition, some suppliers' home offices outside Polk County were listed in the Supplier Directory, even though the supplier had local offices within Polk County. This type of oversight could be avoided by soliciting supplier feedback on the Supplier Directory or providing a structured form for information to be included in the Directory.

6.2 Management of the Bidding Process

A detailed RFB package was distributed to all suppliers that requested the materials, which contained the following information:

- Background information on why the competitive bidding demonstration was being conducted and how competitive bidding works to lower prices.

- Specific discussion of the DMEPOS Competitive Bidding Demonstration process, including how to formulate bids, how bids are evaluated, calculating maximum Medicare allowances, and post-award options.

- An outline of operational policies that would be in effect during the demonstration.

- Forms to be submitted to the DMERC for bid evaluation:

  - Form A: Application for Suppliers—contains general information about the supplier and its employees, including identifying information, categories of

goods/services for which the supplier is submitting a bid, accreditation and licensure, number of employees, their training and certifications, methods for handling customer complaints and assessing customer satisfaction, presence of disaster and infection control plans, declarations regarding investigations or claims against the supplier, a list of references, and a list of financial institutions with which the supplier does business.

- Form B: Bidding Sheets—Suppliers are asked to complete separate bid sheets for each category of goods/services on which they will be submitting a bid. Each bid sheet requests additional details on the processes of care for the particular good/service, specific zip codes that they will service during the demonstration, and bid prices for procedures included in the demonstration.

- Form F: Financial Data—Suppliers are asked to provide detailed information from income statements and tax returns for the previous 2 years as well as accounts receivable summaries for the past 3 months.

- Forms to be used by bid evaluators and references:

  - Form C: On-Site Inspection Checklist—covers examination of physical property, licenses and certifications, staffing, inventory, patient files, and procedures.

  - Form D: Bank References—covers loan payments, returned checks, and credit worthiness of supplier.

  - Form E: Referral Source References—requests information from references regarding customer services, deliveries, patient satisfaction, quality of products, and patient training.

- Appended materials:

  - Requirements and standards for demonstration suppliers.

  - 1996–1997 Medicare utilization data for DMEPOS for Part B beneficiaries permanently residing in Polk County (to assist suppliers in estimating demand).

  - Financial Ratios—an explanation of the financial ratios to be used to evaluate bidders.

  - Glossary of Terms.

A Bidders Conference was held on February 23, 1999 in Lakeland, Florida. Over 100 individuals attended the meeting. Representatives from HCFA and Palmetto GBA, the demonstration contractor, outlined the rationale for the demonstration, described demonstration rules and operating procedures, and reviewed the bidding process and RFB materials. A consultant from the DME industry made a short presentation on developing effective bidding strategies for the demonstration. During a question-and-answer period that lasted over an hour, HCFA and Palmetto representatives responded to over 50 questions from the audience about the

demonstration. Written responses to the questions were sent to attendees and made available on HCFA's Internet site for the demonstration.

In general, the presentations in the Bidders Conference were clear and informative. During our site visits, suppliers reported that the Conference was useful, although a few suppliers felt that most of the material was also contained in the RFB. The question-and-answer session gave suppliers a useful opportunity to raise questions about the bidding process and demonstration rules.

Most suppliers felt that the RFB and Bidders Conference provided them with sufficient information for bid preparation. Some suppliers would have liked HCFA to say how many suppliers would be selected as demonstration suppliers and how much business demonstration suppliers would receive. However, because of the design of the demonstration, HCFA could not provide that information: one of the criteria for determining the competitive range for the demonstration was that the firms in the range would have sufficient capacity to serve the entire market, and the design promoted competition between demonstration suppliers to maintain quality and service levels.

Bids were due March 29, 1999. As detailed in previous chapters, 30 suppliers submitted a total of 73 bids across the five product categories. Suppliers reported spending 40 to 100 hours in preparing their bids. One supplier reported problems in filling out the financial forms, but suppliers had few problems filling out the other forms.

6.3 Selection of Winners

Bids were initially reviewed by Palmetto GBA staff for completeness and eligibility of bidders. Next, a bid evaluation panel of reimbursement and DMEPOS experts reviewed all of the bids to acquaint themselves with the bids and identify any quality problems. No suppliers were eliminated as part of these initial reviews. The panel then sought to establish the number of winning suppliers necessary to meet demand by arraying suppliers in each product category according to their composite bid price, comparing cumulative supplier volume (current and estimated capacity) with current utilization levels, and selecting a minimum number of suppliers. The possibility that some suppliers might drop out of the demonstration was considered, and the minimum number of suppliers was adjusted to account for this possibility.

The panel considered the capacity of these bidders and looked for natural breaks in the bid prices to select a cutoff price. The panel recommended cutoff points to HCFA for approval. The only change requested by HCFA was the addition of an enteral supplier to expand capacity.

After the cutoff was selected, only bidders below the cutoff received further consideration for selection. Suppliers who made the cutoff received site visits by inspectors who completed Form C's On-Site Inspection Checklist. Palmetto GBA staff collected information for Forms D and E from bank and referral source references, respectively. Palmetto GBA obtained at least five references on each supplier. The panel used the information obtained from Forms C, D, and E to score each bidder in each of four areas: customer service and satisfaction, ethics, data collection and retention, and financial stability/creditworthiness. The assessments resulted in a relatively wide distribution of scores ranging from poor (score of less than 70 total points out of 100) and average (70-79 points) to good (80-89 points) and excellent (> 90 points). Two suppliers received less than 70 points; neither of these suppliers was selected, although one asked for reconsideration and was approved after submitting further documentation. Suppliers in the average range were given opportunities to take corrective actions.

The review panel met for more than 3 weeks in a secure conference room for at least 6 hours each day. At least 2 weeks of this time were spent discussing issues related to the quality of goods/services offered by the suppliers. Palmetto GBA made a number of suggestions that might streamline this process somewhat, since the replication of the demonstration on a national scale would make this type of time-intensive process relatively impractical. First, a standard review form for the bids would facilitate a uniform review of the bids by all reviewers and speed up discussions. In addition, assigning points for certain facets of the suppliers' processes could facilitate comparisons (e.g., response time for oxygen delivery: within 8 hours = 5 points, 8-10 hours = 4 points). Finally, each member of the panel reviewed every bid. It may be more practical to assign primary and secondary reviewers to reduce the reviewer burden and review time.

After quality was evaluated, the Bid Evaluation Panel recommended a preliminary list of demonstration suppliers. HCFA reviewed the list and the Panel's rationale and approved the Panel's recommendations. To set the new fee schedule, HCFA returned to the bid prices from all the suppliers who initially bid at or below the HCFA-approved cutoff price. Their individual bids were combined to find a single price for each demonstration item (see Appendix A for a detailed discussion of the method for setting prices).

6.4 Administration and Monitoring

6.4.1 Processing System Changes

DMEPOS claims from Polk County were already being processed by Palmetto GBA. Thus, there was no confusion as to where to send claims as a result of the new reimbursement system for Polk County. However, significant computer system changes were necessary to accommodate the alternative reimbursement structure associated with the demonstration. Palmetto GBA worked directly with their programming contractor (VIPS) to create additional computer program modules to handle the new claims. All claims submitted to the DMERC must be screened to determine whether they are Polk County claims. These claims must then be diverted to special programs designed to assess

- date of service (pre- or post-implementation of the demonstration fee schedule on October 1, 1999);
- procedure category (demonstration or nondemonstration item);
- supplier status (demonstration/nondemonstration; exempt/nonexempt);
- beneficiary/procedure status (grandfathered beneficiary under the demonstration transition policies/item that was still reimbursable to nondemonstration supplier at demonstration price or beneficiary that must seek care from demonstration supplier); and
- grace period status (up to two claims allowed to nondemonstration suppliers, but notice letter sent to beneficiary about demonstration changes).

The modified programs were developed more than 6 months prior to the beginning of the demonstration, and extensive system testing with mock claims was conducted in order to work out any program bugs. A procedure manual was developed specifically for the demonstration, and staff who would be dealing with Polk County suppliers and beneficiaries underwent intensive training. In addition, internal education seminars were held for all Palmetto GBA staff in order to educate them about the demonstration, in case their department came into contact with some aspect of the demonstration or they received any "stray" calls. Since the commencement of the demonstration, there have been no unanticipated problems with the new claims processing modules.

6.4.2 Use of an On-Site Ombudsman

The Medicare Competitive Bidding Ombudsman took up residence in Polk County in March 1999. The Ombudsman was responsible for answering beneficiary, supplier, and provider

inquiries on the "hotline" as well as education and outreach (town meetings, in-service meetings, and one-on-one visits) in the months prior to the October 1, 1999 start date for the demonstration. Closer to the start date, she was also responsible for coordinating and participating in bid evaluation site visits. Since the inception of the demonstration, the Ombudsman continues to answer telephone inquiries and monitor demonstration suppliers through investigation of complaints and routine inspections. Our site visit interviews with local beneficiary groups and suppliers indicate that the Ombudsman's presence in Polk County has been instrumental to the smooth functioning of the demonstration. Both beneficiaries and suppliers have expressed strong support for the presence of a local Ombudsman and open admiration for the skilled manner in which the Ombudsman has handled her tasks.

6.4.3 Site Monitoring

The Ombudsman has been responsible for monitoring the quality of products and services offered by the suppliers. A telephone hotline is used by many suppliers and beneficiaries to request information and to notify the Ombudsman of potential problems. Figure 6-1 shows the monthly number of calls to the Ombudsman during the period from August 1999 through May 2000. Calls were highest in August and September 1999 as beneficiaries received information about the demonstration. Calls have generally fallen since the demonstration prices took effect on October 1, 1999. The calls shown in the table include both requests for information and complaints. Since the demonstration prices took effect on October 1, 1999, the Ombudsman has received a total of 23 beneficiary complaints and 15 supplier complaints.

Beneficiary complaints in the early months of the hotline centered around beneficiaries' dissatisfaction with switching suppliers and/or having to switch name brands (especially for urological supplies). Most of these complaints are handled over the phone with a detailed explanation of the demonstration rules and purpose. Later beneficiary complaints usually focused on a supplier's inability to deliver the appropriate product on time. For these cases, follow-up calls were made to the supplier(s) in question to determine the source of the delay. If the problem appeared to be the result of the supplier's actions, the Ombudsman addressed the issue with the supplier and, in some cases, scheduled a site visit to review records and procedures. Three such site visits have been conducted to date. In all cases, the Ombudsman followed up with the beneficiary to assure appropriate resolution.

Supplier complaints usually focused on the potentially inappropriate behavior of other suppliers or referral agents. For example, one supplier called to complain about a referral agent referring patients to a nondemonstration supplier who, in turn, referred the patient to a

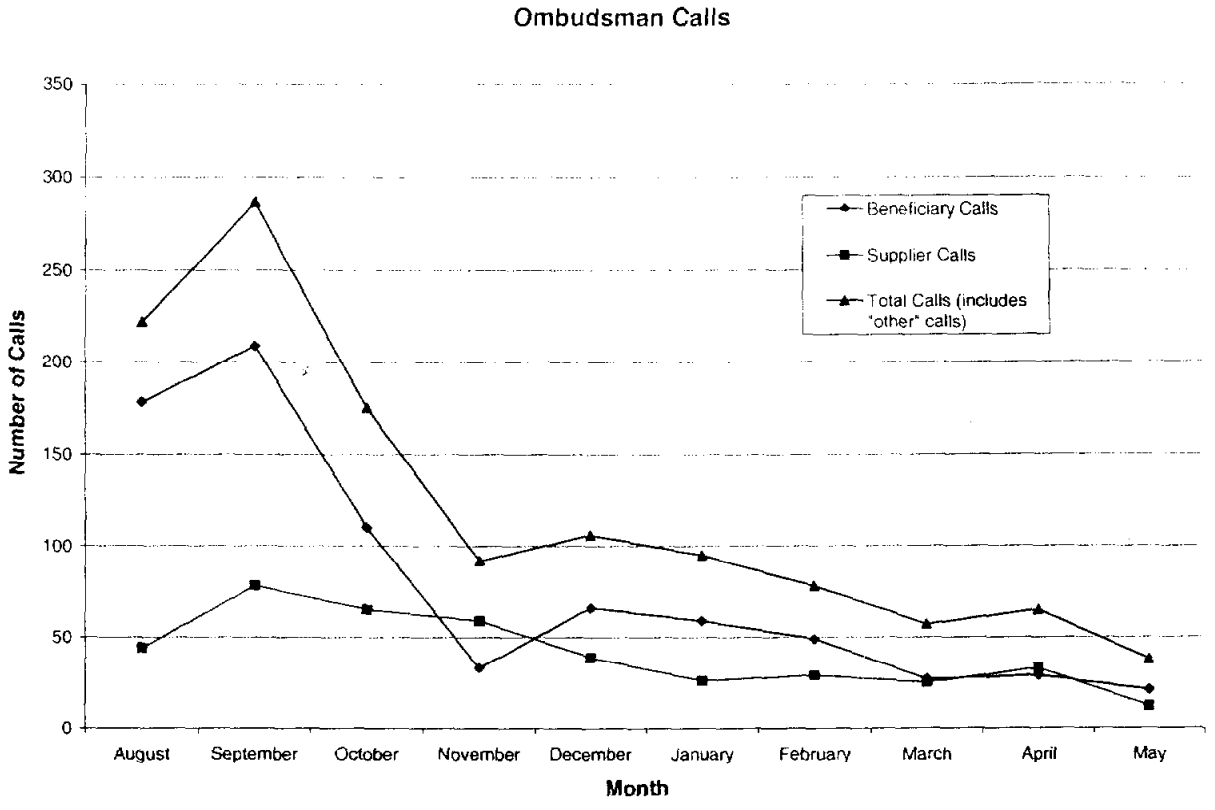

Figure 6-1. Monthly Number of Calls to the Ombudsman

demonstration supplier for demonstration-related items. While this is not expressly prohibited under the demonstration, this type of circuitous referral may endanger the ability of the patient to obtain quality supplies and services in a timely manner. The Ombudsman contacted the referral agent(s) and suppliers involved in this incident and reminded them that this method may not be in the patient's best interest.

In addition to the complaint-driven methods for assuring quality and service, the Ombudsman has also been conducting annual site visits to demonstration suppliers to review procedures, assure appropriate inventories, and check transactions records. Ten routine site visits have been conducted to date.

6.4.4 The Relationship Between the Demonstration Contractor and HCFA

The demonstration contractor, Palmetto GBA, is responsible for implementing and administering the demonstration on a day-to-day basis. In this role, Palmetto is responsible for designing the demonstration, educating beneficiaries, suppliers, and other stakeholders about the demonstration, solicitating and evaluating bids, processing claims, and responding to inquiries and complaints about the demonstration. Most demonstration staff work in Palmetto's Columbia,

South Carolina headquarters; an on-site Ombudsman resides and works in Polk County. Palmetto has extensive experience in administering Medicare DMEPOS programs, serving as the DMERC for 17 southern and western states, providing data analysis for DMEPOS under the Statistical Analysis DME Regional Carrier Contract, and administering the National Supplier Clearinghouse which maintains records for DMEPOS suppliers nationwide.

HCFA staff maintain oversight responsibility for the demonstration, review all documents and Palmetto decisions, and make final decisions about demonstration design and policy. In the period before the demonstration prices went into effect, HCFA staff participated prominently in the announcement of competitive bidding, the Bidders Conference, and a general debriefing for bidders. HCFA and Palmetto staff collaborate closely, with weekly teleconferences and occasional on-site meetings.

The bid evaluation process provides a fairly representative example of the division of labor between Palmetto and HCFA. Bids were mailed directly to Palmetto, and Palmetto staff were responsible for entering and verifying all information on the bid forms. The Bid Evaluation Panel consisted primarily of Palmetto staff with experience in DMEPOS; the HCFA Project Officer served as an ex officio, non-voting member of the Bid Evaluation Panel and participated in many meetings via teleconference. After reviewing bid and capacity information, the Bid Evaluation Panel recommended cutoff bids to determine the competitive range in each product category. These recommendations were forwarded to senior HCFA management for approval. HCFA accepted the panel's recommendations without revision in four of the product categories and expanded the competitive range slightly in the remaining category to ensure sufficient supplier capacity for beneficiaries. Palmetto then evaluated quality and financial data for all suppliers in the competitive range. Based on these evaluations, the Bid Evaluation Panel recommended that all suppliers with good or excellent quality rating be accepted as demonstration suppliers. HCFA reviewed the recommendations and evaluation process, and approved demonstration status for all of the suppliers recommended by the Panel. In addition, HCFA approved two additional suppliers in the competitive range whose quality was rated average, conditional on the suppliers addressing quality issues raised during on-site inspections.

In general, the division of labor between Palmetto and HCFA appears to have worked reasonably well. Palmetto has strong expertise in the areas of DMEPOS, claims processing and administration, beneficiary and supplier communication, and customer service. It makes sense to merge operations of the demonstration with Palmetto's existing DMERC operations to the full extent possible. HCFA has provided appropriate oversight and retained ultimate responsibility for policy decisions. Communication and coordination between Palmetto and HCFA has been

effective. After completion of a longer than expected developmental period, the bidding process and implementation of the demonstration prices proceeded on schedule.

Communication between demonstration suppliers and HCFA is one of the few areas where the division of responsibilities between Palmetto and HCFA may have caused difficulties, at least from the perspective of suppliers. As noted in Section 5, some demonstration suppliers have been concerned about demonstration policy regarding actions by nondemonstration suppliers. They have reported these concerns to Palmetto's Ombudsman, and Palmetto has in turn conveyed these concerns to HCFA and investigated the actions in question. Based on these concerns and investigations, HCFA has reexamined demonstration policies. In some cases, the reexamination has led to changes in demonstration rules for the next demonstration site; in other cases, the original rules were reaffirmed. Although Palmetto's Ombudsman has attempted to explain HCFA's policy decisions to demonstration suppliers, some of the suppliers have been disappointed with the decisions and, knowing that HCFA retains ultimate authority over demonstration policy, have wanted to discuss the decisions directly with HCFA staff, rather than by communicating through the Ombudsman. HCFA staff have met individually with a few demonstration suppliers, but some suppliers still feel that their concerns have not been adequately addressed.

6.5 Discussion

At this relatively early stage of the demonstration's history, a number of preliminary conclusions can be drawn:

- *HCFA and its contractor invested considerable time and energies into notifying and educating stakeholders.* A few suppliers and referral agents thought that some stakeholders were not fully informed about the demonstration. Physicians were perhaps the most difficult group to inform and educate because of the many demands on their time. Some hospital-based referral agents were unsure of which suppliers to use during the first few weeks of the demonstration and had to "get up to speed" through conversations with other social workers and discharge planners. It is not clear, however, that greater efforts or alternative methods would have been more successful in educating these groups.

- *The presence of an on-site Ombudsman has been extremely popular and useful* for all stakeholders involved, including beneficiaries, referral agents, suppliers, HCFA, and Palmetto GBA. Beneficiaries have made good use of the Ombudsman to answer both demonstration- and nondemonstration-related Medicare questions. Referral agents and suppliers report feeling less antagonistic toward the demonstration because the Ombudsman is living in the community ("I say hi to her at the movie theater") and is intimately in touch with the day-to-day operation of the demonstration ("She knows what's going on.")

- *Bid evaluation was a time-consuming and labor-intensive process.* While some of this effort can be attributed to the learning curve associated with running the first competitive bidding demonstration and a concerted effort to thoroughly evaluate all bids, this type of process and the associated expenditures may not be feasible if competitive bidding is adopted on a more widespread basis. Palmetto's recommendations for changes to the evaluation process have the potential to streamline this aspect of the demonstration. In addition, experienced bid evaluators may be able to more expeditiously evaluate bids.

- *Claims are being processed in a timely manner.* Palmetto GBA reports no significant problems in handling the new claims, and suppliers have commended the carrier (during site visit interviews) for the expeditious handling of claims.

- *Competitive bidding can be implemented.* Our initial data indicate that HCFA and its contractor have been successful in implementing competitive bidding. They have been able to notify and educate stakeholders, solicit and evaluate bids, select winners, and implement the new reimbursement system in a relatively orderly fashion and without significantly compromising access or quality.

SECTION 7
SUMMARY AND CONCLUSIONS

Based on 9 months of operation, the DMEPOS Competitive Bidding Demonstration shows promise in meeting its objectives. Competitive bidding has lowered the prices paid by Medicare. Because we do not yet have data on utilization, we cannot definitively conclude that total DMEPOS allowed charges (the product of price times utilization) will fall. However, if utilization remains constant, we estimate that Medicare allowed charges for demonstration products will fall by nearly $1.3 million annually, a reduction of 17 percent.

The demonstration has also shown that HCFA can design, implement, and operate a reimbursement system that uses competitive bidding. HCFA was able to notify stakeholders about the demonstration and provide educational materials to interested parties. HCFA was also able to solicit and evaluate bids and select demonstration suppliers. The administrative claims system was modified to incorporate competitive bidding, and demonstration claims are being processed smoothly. Aided by the presence of an on-site Ombudsman, HCFA appears to be monitoring the demonstration successfully.

However, important evaluation issues remain unresolved. Because the demonstration is still relatively new, it is not yet possible to evaluate the full effects of the demonstration on beneficiary access, quality and product selection, and competitiveness of the market. To date, we have not observed a systematic impact of the demonstration on beneficiary access or quality and product selection. It is premature to evaluate whether the demonstration will have negative or positive impacts on access and quality in the long run. Based on our experience to date, quality problems are most likely to occur in the urological supplies product category, and we will monitor that product category carefully. It is also premature to evaluate whether the demonstration will have long-run impacts on market competitiveness in Polk County. In the short run, the demonstration attracted numerous bidders, and demonstration suppliers appear to be competing on the basis of quality and service to attract and maintain patients. However, the long-run effects on competition will only become apparent after a year or more's experience with the demonstration.

Given these unresolved issues, it is premature to declare that competitive bidding is either an appropriate or an inappropriate reimbursement mechanism for DMEPOS. Our evaluation will continue throughout the duration of the demonstration in Polk County, as well as in the second

demonstration site in San Antonio, and we will collect extensive information on the demonstration's impact over time. We will issue the Year 2 Annual Evaluation Report and Report to Congress 1 year from now and the Final Evaluation Report and Report to Congress after the demonstration concludes.

GLOSSARY

Adjusted Bid Price:	The supplier's bid price for a demonstration product multiplied by the supplier's ratio.
Adjustment Factor:	The ratio of the supplier's composite bid price to the cutoff composite bid price chosen by HCFA for the product category. Used to calculate the demonstration fee schedule from each winning supplier's bids.
Allowed Charges:	The Medicare approved charge for a procedure. Medicare typically pays 80 percent of the allowed charge. The beneficiary is responsible for the remaining 20 percent.
BEP:	Bid Evaluation Panel.
Beneficiary:	Person receiving Medicare benefits.
Beneficiary Copayment:	The percentage of covered medical expenses for which the beneficiary is responsible. For Medicare Part B, the copayment equals 20 percent of the maximum Medicare allowance.
Bid Price:	The amount for which a supplier offers to provide a demonstration item to Medicare and designated beneficiaries during the demonstration cycle.
Bidders Conference:	A meeting sponsored by HCFA and designed to provide potential bidders technical details of the demonstration and the bidding forms. HCFA will respond to questions about the procurement.
Bidding Round:	The period of time ranging from the release of the Request For Bids through selection of the Demonstration Suppliers.
Bid Evaluation Panel:	Group of individuals selected by HCFA to evaluate and score, by assigning points, bidders' proposals. The panel is made up of experienced Palmetto GBA DMEPOS staff and subcontractors.

Brevard County: The external comparison group to Polk County. It was chosen because it matches Polk County on several key characteristics including location in Florida, a single-county Metropolitan Statistical Area, Medicare population, number of DME suppliers, and managed care penetration. It will be used to identify what changes are due to the demonstration project and what changes may be general trends.

Brokering Arrangement: The practice by nondemonstration suppliers of referring requests for demonstration products to a demonstration supplier of their choice.

Commerce Business Daily: A daily list of U.S. government procurement invitations, contract awards, subcontracting leads, sales of surplus property, and foreign business opportunities.

Comparison County: Brevard County was chosen as the external comparison county to Polk County. It was chosen because it matches Polk County on several key characteristics including location in Florida, a single-county Metropolitan Statistical Area, Medicare population, number of DME suppliers, and managed care penetration. It will be used to identify what changes are due to the demonstration project and what changes may be general trends.

Competitive Bidding: A process by which individuals or organizations contend against each other to win a contract by offering the best value to the customer. The prices and terms offered are compared and a subset of bidders selected to supply items and services. It allows the customer to take advantage of marketplace dynamics that are likely to lower prices.

Competitive Environment: Factors affecting competition between suppliers.

Competitive Range: Phrase used to describe the subset of suppliers whose composite bid prices equal or are less than the cutoff composite bid price for the product category.

Composite Bid Price: The sum of the supplier's weighted bid prices for each demonstration product in the product category.

Consolidated Billing:	A comprehensive billing requirement, similar to the one that has been in effect for inpatient hospital services for more than a decade, under which a skilled nursing facility is responsible for billing Medicare for virtually all of the services that its residents receive.
Cutoff Composite Bid Price:	The dollar amount that suppliers' composite bid prices must be equal to or less than for their bids to be in the competitive range.
Cutoff Supplier:	The bidder whose composite bid price equals the cutoff composite bid price for the product category.
Debriefing:	A meeting sponsored by HCFA and designed to notify bidders of the bid evaluation results.
Demonstration Cycle:	Preceded by a bidding round, a demonstration cycle is the period of time ranging from the establishment of demonstration prices until the next demonstration cycle begins or the current demonstration cycle ends.
Demonstration Procedure:	A specific DMEPOS item selected for the demonstration. Each demonstration procedure is identified by its HCPCS code.
Demonstration Site:	The geographic region selected in which to conduct the demonstration. It may consist of all or part of a Metropolitan Statistical Area.
Demonstration Supplier:	A bidding supplier chosen by HCFA to provide one or more product categories to designated beneficiaries.
Designated Beneficiaries:	Specific Medicare Part B beneficiaries who are included in the demonstration because they permanently reside in the demonstration site.
DMEPOS:	Durable Medical Equipment, Prosthetics, Orthotics, and Supplies.
DMERC:	Durable Medical Equipment Regional Carrier.
Estimated Volume:	The quantity of a demonstration product that Medicare paid for on behalf of beneficiaries during a given year or quarter.
Exempt Status:	Suppliers of DMEPOS who are exempt from the demonstration, such as physicians.
FAMED:	Florida Association of Medical Equipment Dealers.

FDA:	Food and Drug Administration.
Federal Acquisition Regulation System:	Created to establish uniform policies and procedures for certain government acquisition contracts and developed in accordance with the requirements of the Office of Federal Procurement Policy Act of 1974, as amended in 1985.
Fee Schedule:	A list of maximum payments for specified Medicare services based on the relative value of the procedure.
Financial Ratios:	Financial variables for suppliers that are used to determine the financial viability of bidding suppliers.
GAO:	General Accounting Office.
HCFA:	Health Care Financing Administration.
HCPCS:	HCFA Common Procedure Coding System.
Herfindahl Index:	A measure of industry concentration. It equals the sum of the squared market shares for each firm in the market.
HMO:	Health Maintenance Organization.
Medicare Reimbursement:	Eighty percent of the maximum Medicare allowance.
Medicare+Choice:	A broader array of health plans in addition to original Medicare and health maintenance organizations that includes preferred provider organizations, provider sponsored organizations, private fee-for-service plans, and a medical savings account.
Metropolitan Statistical Area:	A statistical standard developed by the U.S. Census Bureau for use by federal agencies in the production, analysis, and publication of data on geographic areas dominated by a city.
National Claims History (NCH):	Medicare claims.
Nondemonstration Supplier:	A supplier that is not eligible for Medicare reimbursement when providing demonstration products to designated beneficiaries. Nondemonstration Suppliers may provide certain demonstration products for designated-beneficiary residents in skilled nursing facilities but will only be reimbursed according to demonstration prices.
NSC:	National Supplier Clearinghouse.

Ombudsman:	A person in Polk County designated to coordinate educational and outreach efforts, answer questions, and receive and investigate complaints from beneficiaries, suppliers, and providers.
Palmetto GBA:	Palmetto Government Benefits Administrators, the demonstration contractor and DMERC for Florida.
Pivotal Bid:	The dollar amount, chosen by HCFA, that suppliers' composite bid prices must be equal to or less than for their bids to be in the competitive range.
Polk County, Florida:	The geographic region selected in which to conduct the first DMEPOS demonstration. Polk County is a single county Metropolitan Statistical Area.
PPS:	Prospective Payment System.
Product Category:	A bidding unit for the demonstration. Each product category is a group of demonstration products.
Product Code:	A unique number, part of the HCFA Common Procedure Coding System that identifies the products and procedures to be reimbursed by Medicare.
Product Weight:	A demonstration product's estimated volume during the prior year or quarter divided by the product category's estimated volume during the same year or quarter.
Projected Allowed Charges:	The allowed charges expected under a certain set of circumstances.
Prospective Payment System:	Federal prospective payment rates applicable to Medicare Part A skilled nursing facility services. Payment rates will encompass all costs of furnishing covered skilled nursing services (i.e., routine, ancillary and capital-related costs) not associated with operation-approved educational activities.
Referral:	When a Medicare beneficiary is referred to a DMEPOS supplier for medically necessary services.
Referral Agent:	Someone responsible for referring beneficiaries to DMEPOS suppliers. Referral agents may be hospital discharge planners, home health agency nurses, social workers, or physician office staff.

Rental Episode:	The continuous period of time during which a beneficiary rents an item from a supplier.
Request For Bids:	A formal procurement process by which HCFA is requesting eligible Medicare DMEPOS suppliers to propose their most favorable prices for items and services included in the demonstration.
RFB:	Request For Bids.
Sanction:	An official action by the Office of the Inspector General that bars a supplier from participating in the Medicare program during a specific time period or indefinitely.
Service Area:	A subset of the demonstration site that suppliers may bid to serve.
SNF:	Skilled Nursing Facility.
Subcontracting:	An agreement where a demonstration supplier allows a nondemonstration supplier to provide demonstration products. The demonstration supplier is responsible for the quality of the products provided by the nondemonstration supplier.
Supplier Agreement:	Document a potential Demonstration Supplier signs to formally agree to the obligations of its participation in the demonstration.
Supplier Ratio:	The ratio of the supplier's composite bid price to the cutoff composite bid price chosen by HCFA for the product category.
Transition Policies:	Provisions of the demonstration project that allow beneficiaries to continue receiving oxygen supplies and equipment from their original supplier regardless of the supplier's demonstration status, and also allows beneficiaries to maintain preexisting rental agreements for enteral nutrition equipment and hospital beds and accessories.
Volume Weight:	A demonstration product's estimated allowed charges during the prior year or quarter divided by the product category's estimated allowed charges during the same year or quarter.

Weighted Bid Price: The supplier's bid price for a demonstration product multiplied by the product's weight.

REFERENCES

FAMED et al. v. Kenneth Apfel et al. 194 F.3d 1227 (U.S. Court of Appeals, Eleventh Circuit, 1999).

Integrated Health Services. 2000. "Integrated Health Services Form 10-K 1999 Annual Report to the Securities Exchange Commission." <http://www.sec.gov/Archives/edgar/data/785814/0001005150-00-000524.txt>.

Lincare Holdings, Inc. 2000. "Lincare Holdings, Inc. Form 10-K405 1999 Annual Report to the U.S. Securities Exchange Commission." <http://www.sec.gov/Archives/edgar/data/882235/0000950144-00-003837.txt>.

Lincare Holdings, Inc. 1999. "Lincare Holdings, Inc. Form 10-K405 1998 Annual Report to the U.S. Securities Exchange Commission." <http://www.sec.gov/Archives/edgar/data/882235/0000950144-99-003402.txt>.

Sun Healthcare Group. 1999. "Sun Healthcare Group Files Voluntary Petition for Bankruptcy Protection." <http://www.sunh.com/pages/press_releases/pr991014.htm>.

The Lakeland Ledger. 2000. "Bankruptcies." <http://www.theledger.com/business/business/28bank.htm>. As obtained on April 28, 2000.

Turner, C.F., B.H. Forsyth, S.C. Weeless, M.B. Whitt, D.K. Pate, T.K. Smith, and F.J. Mierzwa. 1994. "Field Test of Medicare Beneficiary Health Status Registry: Major Findings and Recommendations." Research Triangle Park, NC: Research Triangle Institute.

U.S. Congress, House of Representatives. 1997. "Balanced Budget Act of 1997." H.R. 2015, 105th Congress, 1st Session.

APPENDIX A
WEIGHTING ISSUES

A key component of the bid evaluation process is the calculation of the composite bid for each demonstration product category. The composite bid is a way to aggregate a supplier's bids for each individual procedure into a single bid for the whole category that is comparable across bidders. A supplier's composite bid for the product category is calculated by multiplying the supplier's bid for each procedure by the procedure's weight and then summing the weighted bids across every procedure. Each procedure's weight represents the share of that procedure relative to all of the procedures in the category; the weights add to one for each category.

In the Polk County Demonstration, the weights for each procedure were set equal to the procedure's share of allowed charges relative to the total allowed charges for all procedures in the category in Florida in 1997. For example, if a procedure code represents 80 percent of all allowed charges for oxygen equipment, that procedure will have a weight equal to 0.80. The weights were printed in the RFB and incorporated into the bidding software that was available to all bidders.

Several important issues related to weighting have arisen from our analysis of the bidding results. Briefly, the key issues are as follows:

- The weighting mechanism, combined with the formula to set prices for individual procedures, can cause prices to be set too high. This problem occurred for surgical dressings.
- With the current weighting mechanism, it is possible that a supplier offering lower allowed charges to HCFA will have a higher composite bid than a supplier offering higher allowed charges to HCFA.
- The weighting process does not adequately distinguish between HCPCS code modifiers that are associated with new purchase, used purchase, and rental payments. In the case of enteral nutrition, the use of new purchase prices in the calculation of the composite bid has a significant impact.

Below, we demonstrate how these issues develop when weights based on allowed charges are used. We describe an alternative weighting mechanism based on procedure volume and show why volume weighting is preferred. HCFA plans to use volume weighting in the next demonstration site, San Antonio, Texas.

All three of the issues discussed above are related to the fact that a weighting mechanism based on allowed charges puts too much weight on high-priced procedures. Bid prices obviously

must enter the calculation of the composite bid, and, as such, higher bids should lead to a higher composite bid. However, the problem with the weights based on allowed charges is that the price effect is essentially squared in the calculation of the composite bid, and squaring a large price has a disproportionately large impact on higher prices.

Table A-1 provides a simple example of the weighting process for a product category where there are only two procedures. Procedure A has a fee of $1.00 and a quantity of 9. Procedure B has a fee of $9.00 and a quantity of 1. Allowed charges are $9.00 for both procedures. The weights used in Polk County, based on each procedure's share of allowed charges, would be 0.5 for each procedure. In the final column of the table, we present an alternative set of weights, labeled volume weights, which are based on each procedure's share of total volume in the demonstration area. For the example, the volume weights are 0.9 for Procedure A and 0.1 for Procedure B.

Table A-1. Alternative Weights

Procedure	Fee	Quantity	Allowed Charge	Polk County Weight	Volume Weight
A	$1.00	9	9.00	0.50	0.90
B	$9.00	1	9.00	0.50	0.10
Total	—	10	18.00	1.00	1.00

Table A-2 present bids from three suppliers. Supplier 1 bids $0.80 for Procedure A and $3.00 for Procedure B. Supplier 2 bids $1.00 for Procedure A and $8.00 for Procedure B. Supplier 3 simply bids the existing fee schedule: $1.00 for Procedure A and $9.00 for Procedure B.

The composite bid for a supplier is calculated by multiplying the weight for each procedure by the bid for the procedure and summing across all procedures. For example, the composite bid for Supplier 1 using the Polk County weights = (0.5 × $0.80) + (0.5 × $3.00) = $1.90. The composite bids based on the Polk County weights appear in Table A-2, along with composite bids based on the volume weights. The table also shows the projected allowed charges that would arise if the quantity of each procedure remains constant and is purchased at fees equal to the supplier's bids.

Table A-2. Composite Bids Under Alternative Weighting Mechanisms

Supplier	Bid for A	Bid for B	Composite Bid, Polk County Weights	Composite Bid, Volume Weights	Projected Allowed Charges	Supplier Composite Bid/Fee Schedule Composite Bid, Polk County Weights	Supplier Composite Bid/Fee Schedule Composite Bid, Volume Weights	Supplier Allowed Charges/Fee Schedule Allowed Charges
1	$0.80	$3.00	$1.90	$1.02	$10.20	38.0%	56.7%	56.7%
2	$1.00	$8.00	$4.50	$1.70	$17.00	90.0%	94.4%	94.4%
3	$1.00	$9.00	$5.00	$1.80	$18.00	100.0%	100.0%	100.0%
Fee Schedule	$1.00	$9.00	$5.00	$1.80	$18.00	100.0%	100.0%	100.0%

A comparison of the composite bids and the projected allowed charges yields an important result: the composite bid based on volume weights is proportional to projected allowed charges. The factor of proportionality is 1 divided by the total volume of all procedures (in this case, 1/10). In contrast, the composite bid based on the Polk County weights is not proportional to projected allowed charges.

A related, but less obvious, result is also important. The high-priced Procedure B makes a much larger contribution to the composite bid under Polk County weights than it makes to the composite bid under volume weights or to the projected allowed charges. For example, for Supplier 1, Procedure B accounts for $1.50 (0.5 × $3.00) of the $1.90 composite bid under Polk County weights. In contrast, Procedure B accounts for $0.30 (0.1 × $3.00) of Supplier 1's $1.02 composite bid under volume weighting and $3.00 (1 × $3.00) of the $10.20 in projected allowed charges. Note that if one calculates the composite bid using the fee schedule and the Polk County weights, Procedure B accounts for $4.50 (0.5 × $9.00) of the $5.00 composite bid. This is 90 percent of the composite bid; however, Procedure B accounts for only 50 percent of projected allowed charges.

Supplier 1's composite bid under the Polk County weights is 38 percent of the composite bid based on the fee schedule; however, projected allowed charges for the supplier are 56.7 percent of projected charges under the fee schedule. Similarly, Supplier 2's composite bid under Polk County weights is a smaller percentage of the composite bid based on the fee schedule than the corresponding percentage of projected allowed charges. Thus, if either Supplier 1 or 2 was selected as the pivotal bid under the Polk County weights, the ratio between the pivotal bid and the composite bid based on the fee schedule would overestimate the projected savings from the

demonstration. This is not a general result, though it accurately portrays what happened in the case of enteral nutrition. With an appropriate selection of bid prices, we could have created a bid that actually underestimated the projected savings in allowed charges. Alternatively, if all bids were proportionately lower than the fee schedule (i.e., the bid for each procedure was equal to 80 percent of the current fee), the ratio between the composite bids would be equal to the relationship between projected allowed charges. In the example, the relatively low bid for the high-priced procedure leads to the overestimate because the high-priced procedure accounts for a disproportionately large share of the composite bid.

In contrast to the ratio based on Polk County weights, if volume weights are used, the ratio between each supplier's composite bid and the composite bid based on the fee schedule is exactly equal to the corresponding ratio for projected allowed charges. This is a general result that arises from the proportionality between the volume-weighted composite bid and projected allowed charges.

The example suggests one reason why our estimates of the cost savings for the demonstration for enteral nutrition and surgical dressings are not the same as the percentage difference between the composite price based on the demonstration fee schedule and the composite price based on the Florida fee schedule. There is a second reason: the process used to set prices for individual procedures is distorted by the weighting mechanism used in Polk County. To show this, we briefly review how prices are set for individual procedures. This process is designed to ensure that all winners receive the same set of prices and to ensure that winning bidders will receive at least as much as they bid (winners would have a legitimate complaint if prices were, on average, less than their bids). The process involves four steps:

1. The pivotal bid separating winners and losers is selected.

   The composite bids are first arrayed from lowest to highest. Once the pivotal bid has been selected, all bidders at or below the pivotal bid are selected as winners (for this example, we will assume that all bidders meet quality requirements).

2. The adjustment factor is calculated.

   For each winning bid, an adjustment factor is calculated by dividing the pivotal bid by that firm's composite bid. In our example, suppose that Supplier 2 is selected as the pivotal bid. The adjustment factor for Supplier 1 (based on Polk County weights) then equals 2.37 ($4.50/$1.90), while the adjustment factor for Supplier 2 equals 1 ($4.50/$4.50).

3. The supplier's bids for individual procedures are multiplied by the adjustment factor.

4. The adjusted bids for each procedure are averaged across suppliers. This yields the demonstration price.

Table A-3 shows the results for the example using the Polk County weights. The demonstration price for Procedure A is $1.44, while the demonstration price for Procedure B is $7.56. One unexpected result is immediately apparent. The demonstration price for Procedure A is actually higher than both winning firms bid. In this case, it is also higher than the original fee schedule price. By itself, this result is not necessarily undesirable. For individual procedures, even an appropriate adjustment process could result in higher fees than any winning supplier bid (see below for the case of volume weights). But it is surprising that the demonstration price for Procedure A is so much higher than either supplier bid.

Table A-3. Adjusted Bids and Demonstration Prices, Using Polk County Weights

Supplier	Bid for A	Bid for B	Adjustment Factor	Adjusted Bid for A	Adjusted Bid for B	Adjusted Composite Bid	Projected Allowed Charges
1	$0.80	$3.00	2.37	$1.89	$7.11	$4.50	$24.12
2	$1.00	$8.00	1.00	$1.00	$8.00	$4.50	$17.00
3	$1.00	$9.00	non-winner				
Demonstration Price				$1.44	$7.56	$4.50	$20.52

A second unexpected result is less apparent, but definitely undesirable. Projected allowed charges under the demonstration prices are $20.52, more than the $10.20 and $17.00 that were calculated for Supplier 1 and 2 on the basis of the unadjusted bids in Table A-2. Somehow, the adjustment process actually leads to higher projected allowed charges than either winning supplier actually proposed. Moreover, projected allowed charges with the demonstration prices are also higher than under the original fee schedule ($18.00 from Table A-2).

The explanation for these results is somewhat complicated but ultimately goes back to the Polk County weighting mechanism. As we showed, this weighting mechanism puts disproportionate weight on procedures that are initially high priced. Therefore, Supplier 1, which bid especially low on a high-priced procedure, had a composite bid that was much lower than it should have been, based on its projected reduction in allowed charges. In turn, Supplier 1's low composite bid produced a disproportionately high adjustment factor. The high adjustment factor inflated Supplier 1's prices too much, thereby lifting the price of Procedure A much higher than either firm originally bid. Finally, because Procedure A has a relatively high volume, total

projected allowed charges actually rise higher than the projected amount based on each supplier's original bid. Indeed, projected allowed charges rise even higher than they would have been under the original fee schedule.

The unexpected results in Table A-3 are by no means guaranteed by the Polk County weighting mechanism. The example was carefully chosen to produce these results. But the example accurately portrays what happened in the case of surgical dressings. For surgical dressings, all of the winning bidders submitted bids that produced projected allowed charges that were less than those under the existing fee schedule. However, because the adjustment factor was distorted, 56 out of 62 prices rose relative to the existing fee schedule, and projected allowed charges rose relative to the existing fee schedule. In contrast, we estimated that projected allowed charges would have been 15 percent lower than the existing fee schedule if volume weighting had been used instead of the Polk County weights. This estimate assumes that bidders would submit the same bids under volume weighting as they submitted with the actual Polk County weights.

Table A-4 reproduces Table A-3 but uses volume weights instead of the Polk County weights. In this table, the adjustment factor for Supplier 1 is 1.67 ($1.70/$1.02), using the composite bids under volume weights for Suppliers 1 and 2 from Table A-2, while the adjustment factor for Supplier 2 is 1.00.

Table A-4. Adjusted Bids and Demonstration Prices, Using Volume Weights

Supplier	Bid for A	Bid for B	Adjustment Factor	Adjusted Bid for A	Adjusted Bid for B	Adjusted Composite Bid	Projected Allowed Charges
1	$0.80	$3.00	1.67	$1.33	$5.01	$1.70	$17.00
2	$1.00	$8.00	1.00	$1.00	$8.00	$1.70	$17.00
3	$1.00	$9.00	non-winner				
Demonstration Price				$1.17	$6.51	$1.70	$17.00

Based on volume weighting, the demonstration price for Procedure A is $1.17, while the demonstration price for Procedure B is $6.51. Both of these prices are lower than the demonstration prices under the Polk County weights. The volume-weighted price of Procedure A is still higher than either supplier bid and the existing fee schedule. This may appear surprising at first glance; however, because the demonstration price for Procedure B is below Supplier 2's bid, the demonstration price for Procedure A must be higher than Supplier 2's bid in order to ensure

that Supplier 2 receives at least as much as the projected allowed charges that would arise from its bid.

The improvement from using volume weights instead of the Polk County weights is seen by looking at projected allowed charges under the two weighting mechanisms. Projected allowed charges are lower under volume weighting. Moreover, the adjusted composite bid based on the demonstration prices is exactly equal to the unadjusted composite bid for the pivotal bidder. These results support the use of volume weighting.

Volume weighting has at least two potential drawbacks. However, we believe that both of these drawbacks can be overcome. The first potential drawback is the need to carefully distinguish procedure codes that can be provided as new or used purchases or monthly rental payments. Separate weights could be set up for each modifier, based on the volume associated with that modifier. Alternatively, the separate modifiers could be converted into a single volume weight for the underlying HCPCS code using the current payment formula (i.e., one new purchase claim equals 10 monthly rental payments, etc.), and then suppliers could bid on the most common modifier used for that HCPCS code. Thus, it would appear that this potential drawback can be easily overcome.

Second, volume weighting may be somewhat misleading to naive bidders who, focusing only on the volume weights, may miss the fact that the contribution of an individual procedure to the composite bid depends on both the volume weight and the bid for that procedure. As a result, naive bidders might place all of their emphasis on high-volume, low-price procedures, and pay less attention to higher priced, but low-volume procedures that may nevertheless offer possibilities for improving the composite bid. Example 1 provides a case where a high-volume, low-price procedure dominates the volume weights, but the low-volume procedure also has a major impact on the composite bid due to its high price. Naive bidders might miss this nuance. In contrast, weighting based on allowed charges has the advantage of combining the effects of volume and the current fee schedule, although it does lead to the important issues discussed earlier.

We believe that this potential drawback of volume weighting can be overcome by educating bidders. HCFA can emphasize in the RFB and the Bidders Conference that the composite bid is determined by both the volume weight and the bid for each procedure. In addition, the bidding sheet could present both the volume weight and the share of allowed charges accounted for by each procedure. This presentation will help direct bidders' attention to the procedures that are likely to have the most effect on the composite bid. Still, the presentation

must make it clear that it is the volume weights, not the shares of allowed charges, that directly enter the composite bid calculation.

As noted previously, HCFA has decided to use volume weighting at the second demonstration site in San Antonio, Texas.

A.1 Surgical Dressings

The most surprising result reported in Table 2-2 is that projected demonstration allowed charges are actually higher for surgical dressings than they would have been using the 1999 fee schedule. This result raised the uncomfortable possibility that the wrong set of suppliers were selected as winners in the demonstration, since a supplier bidding the 1999 fee schedule would have had a higher composite bid than the composite based on the demonstration fee schedule even though the supplier offered lower allowed charges.

To test whether this actually occurred, we calculated composite bids using volume weighting using each supplier's bid information. We found that volume weighting accurately ranks bidders on the basis of projected allowed charges, and the resulting composite bids can be directly compared to the composite rate based on the fee schedule. The same set of five winning suppliers would have been selected if volume weighting had been used instead of allowed charge weighting. In addition, volume weighting produces nearly the same ordering of suppliers as the allowed charge weighting: The actual selection of winners was based on the fifth lowest bidder under allowed charge weighting. This bidder also ranked fifth under volume weighting, and the four lower bidders under allowed charge weighting were also lower under volume weighting. Therefore, the same bidders would have been selected as winners if volume weighting had been used and the same number of winners were selected. Moreover, each of the five lowest bidders offered HCFA a good deal in the sense that projected allowed charges under each supplier's bids are lower than projected allowed charges based on the Florida fee schedule.

However, one unintended result does remain for surgical dressings. As noted above, projected allowed charges under the demonstration fee schedule are actually higher than those generated by the Florida fee schedule. At first blush, this result does not appear consistent with the previous paragraph's finding that projected allowed charges under each supplier's bids are lower than projected allowed charges based on the Florida fee schedule. The explanation for this seeming contradiction arises from the way that the fees for individual procedures are set. The fee for an individual procedure equals the average of the adjusted bids for that procedure by winning bidders. The adjustment factor for each winning supplier is the ratio between the pivotal composite bid and the supplier's composite bid. With the appropriate (volume) weighting

mechanism, the adjustment factor guarantees that (1) all of the firms' adjusted composite bids will be equal to the pivotal composite bid, and (2) projected allowed charges will be equal under all of the adjusted bids. Unfortunately, with allowed charge weighting, the composite bid is distorted, and so is the adjustment factor. With allowed charge weighting, the adjustment factor still guarantees that all of the firms' composite bids are equal to the pivotal composite bid, but it is no longer the case that projected allowed charges will be equal under all of the adjusted bids. In the case of surgical dressings, some of the adjustment factors are too high (2.58, 1.33, 1.47, 1.12, and 1, respectively) under the allowed charge weighting versus the appropriate adjustments based on volume weighting (1.41, 1.09, 1.31, 1.02, and 1). With the overadjustment, prices for individual procedures are set too high; the overall effect is to raise estimated allowed charges higher than they would have been under the existing fee schedule.

If the correct adjustment factor had been applied, we estimate that the demonstration fee schedule would have generated projected allowed charges that were about 15 percent lower than those generated by the Florida fee schedule, whereas the actual demonstration fee schedule generates projected allowed charges that are about 10 percent higher than those generated by the Florida fee schedule. Suppliers appear to have benefitted from the Polk County weights.

A.2 Problems with Modifiers to the HCPCS Codes

In the home oxygen, hospital beds, and enteral nutrition product categories, payment for some HCPCS codes depends on whether the claim represents a new purchase (procedure modifier NU), used purchase (modifier UE), monthly rental (modifier RR), or servicing of equipment that is not incorporated within the preceding modifiers (modifier MS). Under the existing fee structure, the used purchase allowance equals 75 percent of the new purchase allowance, the monthly rental allowance equals 10 percent of the new purchase allowance, and the service charge equals 5 percent of the new purchase allowance. Total rental payments are limited to the new purchase allowance. The demonstration's RFB notes that a similar relationship will hold in the demonstration.

The distribution of claims and allowed charges across modifiers was included in the RFB. However, only one modifier per HCPCS code was included in Form B's Bidding Sheets. Only new purchase modifiers were included for enteral nutrition, while monthly rental rate modifiers were included for home oxygen, and either new purchase or monthly rental rate modifiers were included for hospital beds, depending on the HCPCS code. The single weight represents allowed charges for all modifiers associated with the HCPCS code.

Because the new purchase price is 10 times the monthly rental rate, it makes a huge difference whether the purchase price or rental rate is included in the calculation of the composite bid. This difference is most clearly shown in the case of enteral nutrition. For two procedures in this category (HCPCS code B9000, enteral nutrition infusion pump, without alarm, and B9002, enteral nutrition infusion pump, with alarm) the bidding weights were explicitly associated with purchases of new equipment. Rental agreements are most common and account for most of the allowed charges for these procedures. As mentioned, the RFB weights are actually based on allowed charges for new and used purchases, monthly rental payments, and servicing. Multiplying these weights by the new purchase price in the composite bid calculation produces an unintended and unfortunate result: the bids for these items have a disproportionately large effect on the composite bid because the new purchase price is 10 times the rental rate, which accounts for most of the allowed charges for the procedure. Table A-5 shows that the two procedures, whose weights represent 7.3 percent of allowed charges, account for 91.8 percent of the composite bid. In this case, the composite bid is almost entirely determined by the bids for B9000 and B9002.

Table A-5. Effects of B9000 and B9002 on Enteral Composite Bid, RFB Weights

Procedure	Weight	Bid	Weight * Bid	Share of Composite Bid
B9000	0.002774	695.62	1.93	0.0308
B9002	0.069952	793.65	55.52	0.8870
All Others	0.927274	5.54	5.14	0.0822
Total	1.000000	62.59	62.59	1.0000

To correct for this problem, we recommend that, in addition to using volume weights, separate weights be used for each of the modifiers associated with enteral nutrition pumps. A single bid could still be taken for the new purchase price; however, this price would be converted to the corresponding used purchase and rental prices before multiplication by the weights takes place.

Adopting the new weighting pattern would impact bid evaluation for enteral nutrition in several ways. First, each supplier's composite bid would change. Although the relative ordering of suppliers could remain the same after the recalculation, it could also change. With a change in ordering, the set of winning suppliers might also change, if a supplier whose composite bid was previously below the old pivotal bid now had a bid higher than the new pivotal bid. Finally, the

demonstration prices for individual procedures would be likely to change. The change in weighting would change both the supplier's composite bid and the pivotal bid, meaning that the adjustment factor that determines prices would also be likely to change.

In theory, applying separate weights for each of the modifiers associated with home oxygen and hospital beds would also change the composite bids in these categories. In practice, however, the changes would be much smaller than the change in enteral nutrition. For home oxygen, bidders were required to submit bids for the rental rates, and rental rates accounted for the vast majority of allowed charges. The same holds for hospital beds.

It is not possible to know whether any of the enteral nutrition bidders responded strategically to the inclusion of purchase prices instead of rental rates for B9000 and B9002. However, the top two firms in the allowed charge weighting and purchase price scenario that ultimately drove winner selection also had the two lowest bids for B9000 and B9002. They each submitted bids for B9000 that were less than half of the Florida fee schedule amount, and their bids for B9002 were more than 40 percent below the Florida fee schedule amount. For B9000, the two suppliers had bids that were much lower than other suppliers. However, there was a much smaller gap between these suppliers' bids and the bids of other suppliers for B9002; because B9002 had a higher weight, this procedure had a larger impact on the composite price and would have been a better target for strategic price reductions than B9000. One of the two suppliers had a relatively high bid for B4150, a procedure that makes a disproportionately small impact under allowed charge weighting, but has a very high weight under volume weighting; bidding high on this procedure would be consistent with strategic behavior. On the other hand, the other supplier's bid for B4150 was in the middle of the bid distribution.

We have focused on enteral nutrition in this section for several reasons. First enteral nutrition is unique among the five product categories in that using volume weighting produces a significantly different bid ranking than allowed charge weighting. This result is not just due to the use of bids for the purchase price for B9000 and B9002; differences in ranking between volume weighting and allowed charge weighting persist even if rental rates are used instead of purchase prices. The result appears to be tied to the fact that there are large differences in price between the procedures included in the enteral nutrition product category. In particular, the most common enteral procedure code, B4150, accounts for 37 percent of the allowed charges and over 70 percent of the volume in the product category, but has a relatively low unit price. Because of the deficiencies in the allowed charge weighting mechanism, B4150 accounts for a woefully small percentage of the composite bid calculated with allowed charge weighting. When the appropriate volume weighting is applied, B4150 accounts for a much larger share of the

resulting composite bid. The variation of bids for B4150 across suppliers is wide enough for this to change the overall ranking of suppliers.

APPENDIX B
MEDICARE BENEFICIARY SATISFACTION WITH DURABLE MEDICAL EQUIPMENT SUPPLIERS

B.1 Introduction

Medicare's Part B benefit provides coverage for durable medical equipment (DME) and prosthetics, orthotics, and supplies (POS). Part B covers a wide range of DME for use in the home, including oxygen equipment and supplies, hospital beds, wheelchairs, walkers, and renal dialysis machines. The coverage for POS, in both home and nursing home settings, includes enteral nutrition therapy, urological supplies, surgical dressings, and devices such as hand braces and artificial limbs. DMEPOS benefits are especially important to sick and disabled Medicare beneficiaries, allowing them to avoid institutionalization, live more mobile and independent lives, and maintain their quality of life.

While DMEPOS are of indisputable importance to beneficiaries, the cost of these benefits has attracted scrutiny from policy makers during recent years. As with other Part B benefits, expenditures for DMEPOS have risen rapidly during recent years. Part B expenditures for DMEPOS total more than $5 billion annually, with recent annual rates of increase topping 10 percent in 1996 and 1997. Although expenditures actually fell in 1998 because of reductions in the fee schedule, future expenditures are projected to rise at a greater than 5 percent annual rate during the next decade (Board of Trustees, Federal Hospital Insurance Trust Fund, 1999). In addition, several studies suggest that Medicare pays more for DMEPOS than other purchasers pay (GAO, 1997; DHHS/OIG, 1996a, 1996b, 1996c, 1996d).

As a result of this scrutiny, Congress and the Health Care Financing Administration (HCFA) have adopted initiatives to reduce DMEPOS fees. As part of the Balanced Budget Act of 1997 (BBA 97), Congress mandated substantial cuts in the Medicare fee schedule for oxygen equipment and supplies, the largest single component of DMEPOS spending. Also as part of BBA 97, Congress approved up to three HCFA demonstration projects to use competitive bidding to set the price of Medicare Part B services. HCFA implemented the DMEPOS Competitive Bidding Demonstration in Polk County, Florida, with bids for five types of DMEPOS collected in March 1999 and new, lower fees taking effect in October 1999.

These initiatives raise an important question: what impact, if any, will policy initiatives such as reductions in fees and the DMEPOS Competitive Bidding Demonstration have on beneficiaries' satisfaction with the quality of DMEPOS services they receive? A necessary step in answering this question is to have a baseline measure of beneficiary satisfaction before an initiative is implemented. This information can then be compared to beneficiary satisfaction after implementation. Unfortunately, published information about beneficiary satisfaction is extremely limited.

In this paper, we analyze Medicare beneficiary satisfaction with DMEPOS suppliers using data from a random survey of beneficiaries who use five types of DMEPOS in two Florida counties. Ultimately, this baseline information will be used to evaluate whether Medicare's competitive bidding demonstration project for DMEPOS affects beneficiary satisfaction, access to care, quality of equipment, and product selection. More generally, however, we believe that these estimates represent current levels of beneficiary satisfaction with DMEPOS suppliers.

Our results indicate that Medicare beneficiaries who use DMEPOS are currently highly satisfied with their suppliers. Levels of satisfaction are particularly high for oxygen users, but satisfaction is also high among users of other DMEPOS. Satisfaction levels are significantly related to the number of contacts with the supplier, time between order and delivery, and how well the supplier trains beneficiaries on equipment use.

B.2 Methods

As part of a comprehensive evaluation of Medicare's DMEPOS Competitive Bidding Demonstration, baseline surveys of DMEPOS users in Polk and Brevard Counties in Florida were conducted in the spring of 1999. Polk County is the first site for the competitive demonstration; Brevard County, which is not included in the demonstration, was selected as a comparison site for the evaluation because it closely resembles Polk County in several key characteristics. Both counties are located in Florida, have similar numbers of Medicare beneficiaries, have few beneficiaries enrolled in managed care, and comprise a single-county Metropolitan Statistical Area. The baseline surveys entered the field 7 months prior to implementing the new demonstration fee schedule in Polk County, which began on October 1, 1999; thus, the baseline results reported here are unlikely to have been affected by the demonstration. Follow-up surveys in the two counties are scheduled to be conducted 9 months after implementing the demonstration fee schedule; these results will be compared to the baseline surveys to evaluate the impact of the demonstration in Polk County.

Separate survey questionnaires were developed for beneficiaries using home oxygen equipment and beneficiaries using other types of DMEPOS covered in the demonstration (hospital beds, urological equipment, surgical dressings, and enteral nutrition). An oxygen-specific questionnaire was developed because home oxygen accounts for the majority of DMEPOS use and expenditures. Beneficiaries using both home oxygen and other equipment included in the demonstration received the oxygen survey. To facilitate pooling of the data for evaluation purposes, many of the questions on the oxygen and other equipment questionnaires were the same. However, a few questions differed to allow for collection of information specific to oxygen and nonoxygen product lines. The surveys included questions about the following:

- medical equipment use,
- quality of service,
- satisfaction with service/equipment,
- access to service,
- health status, and
- respondent characteristics.

More specifically, questions addressed various aspects of service and equipment, including but not limited to reliability, length of time needed to fill orders or address problems, satisfaction with overall service, and the frequency of repeat calls for the same problem. Questions concerning a beneficiary's level of education, income, and perceived health status were also included.

The data collection design was adapted from the approach used in the Medicare Beneficiary Health Status Registry pilot study that achieved a response rate of 83 percent from Medicare beneficiaries (Turner et al., 1994). The protocol included mailing questionnaires to all members of the sampling frame, a second mailing to nonrespondents, and telephone follow-up and interviews with remaining nonrespondents.

The sampling frame for the baseline survey was composed of a list of Medicare recipients (aged or disabled) with permanent addresses in Polk and Brevard Counties who submitted Part B claims for home oxygen, hospital beds, urological supplies, surgical dressings, and enteral nutrition from July through November 1998. The initial list was merged with death dates from the Medicare Enrollment Database, and individuals who were known to have died were deleted from the sampling frame prior to sample selection. Initial plans called for random samples of 800 oxygen users in Polk County, 800 nonoxygen users in Polk County, 800 oxygen users in Brevard County, and 800 nonoxygen users in Brevard County to be selected for surveying. However, there were fewer than 800 nonoxygen users in both Polk and Brevard County, so all nonoxygen

users were included in the sample. For oxygen users, a random sample of 800 beneficiaries from Polk County was drawn; the sample for the comparison county was then drawn with the objective of matching the sample drawn from Polk County.

Surveys were mailed to 1,600 oxygen users and 1,295 users of other medical equipment and supplies. Forty-eight individuals were ineligible for the survey because they lived outside the study counties, and 195 individuals in the sample were deceased. A total of 1,953 individuals responded, for an overall response rate, after excluding ineligibles and deceased, of 74 percent. The response rate for the oxygen survey was 82 percent, while the response rate for the other DMEPOS survey was 63 percent. The higher response rates for oxygen may be because beneficiaries spend more money and receive more service on oxygen equipment than on other supplies; thus, they were more interested in the oxygen survey.

In the next section, we present descriptive statistics for patient satisfaction and factors related to satisfaction. In addition, we estimate an ordered logit model where patient satisfaction with their supplier is the dependent variable, and patient demographics and supplier factors are explanatory variables.

B.3 Results

B.3.1 User Demographics

Table B-1 shows the demographics for respondents to the two surveys; the average age is over 70 years old, and consistent with this age, more respondents are female than male. Not surprisingly, the surveys reveal a high degree of morbidity. Respondents were asked to rate their overall health on a scale from 1 to 5, with 1 signifying excellent and 5 signifying poor. Approximately one-third of respondents to each survey rated their overall health as poor, and 75 percent ranked their health as either fair or poor. The majority of respondents reported living with a spouse or other relative; however, 23 percent of oxygen users and 12 percent of other DMEPOS users reported living alone. Additionally, 4 percent of oxygen users and 18 percent of other DMEPOS users reported living in a nursing home or assisted living facility. Survey results also reveal that over three-quarters of oxygen users responded to the survey themselves; in contrast, proxy responses were very common (61 percent) for other DMEPOS users.

B.3.2 Satisfaction

Oxygen users are extremely satisfied with their suppliers, and other DMEPOS users are also quite satisfied, although slightly less so. Each survey asks respondents to rate their supplier on a scale from 0 to 10, with 10 being the best. Sixty-seven percent of oxygen users and

Table B-1. Respondent Demographics

	Oxygen Users (%)	Other DMEPOS Users (%)
Average Age	73	75
Sex		
Male	47.1	43.2
Female	52.9	56.8
Health status		
Excellent	0.8	2.3
Very good	4.0	5.7
Good	16.0	18.0
Fair	46.8	39.8
Poor	32.4	34.2
Living arrangements		
Live alone	26.2	12.3
Live with others	76.3	87.7
Nursing home or assisted living	3.5	18.4
Duration of use greater than 1 year	80.2	76.6
Proxy respondent	26.8	60.9

Source: Health Care Financing Administration. 1999a. "Medical Equipment and Supplies Consumer Survey."
Health Care Financing Administration. 1999b. "Oxygen Consumer Survey."

43 percent of the other DMEPOS users rate their supplier as highly as possible for overall satisfaction (Figure B-1). These numbers increase to 92 percent and 74 percent, respectively, when including rankings of 8 or higher. Over 90 percent in each group responded that they would recommend their supplier to a friend. Only a handful of respondents, less than 2 percent, report having switched suppliers because they were unsatisfied with the service.

B.3.3 Factors Affecting Satisfaction

A number of factors are likely to increase patient satisfaction with their suppliers. These factors include prompt delivery, effective training in the use of the equipment, frequent supplier visits to the user's home, reliable equipment, and prompt response to equipment or service problems. Table B-2 shows how users ranked suppliers' performance based on these criteria.

As might be expected given the high reported levels of satisfaction, users rank their suppliers highly on most of these factors. However, differences between oxygen users and users of other DMEPOS are apparent. For example, 75 percent of users report that their oxygen

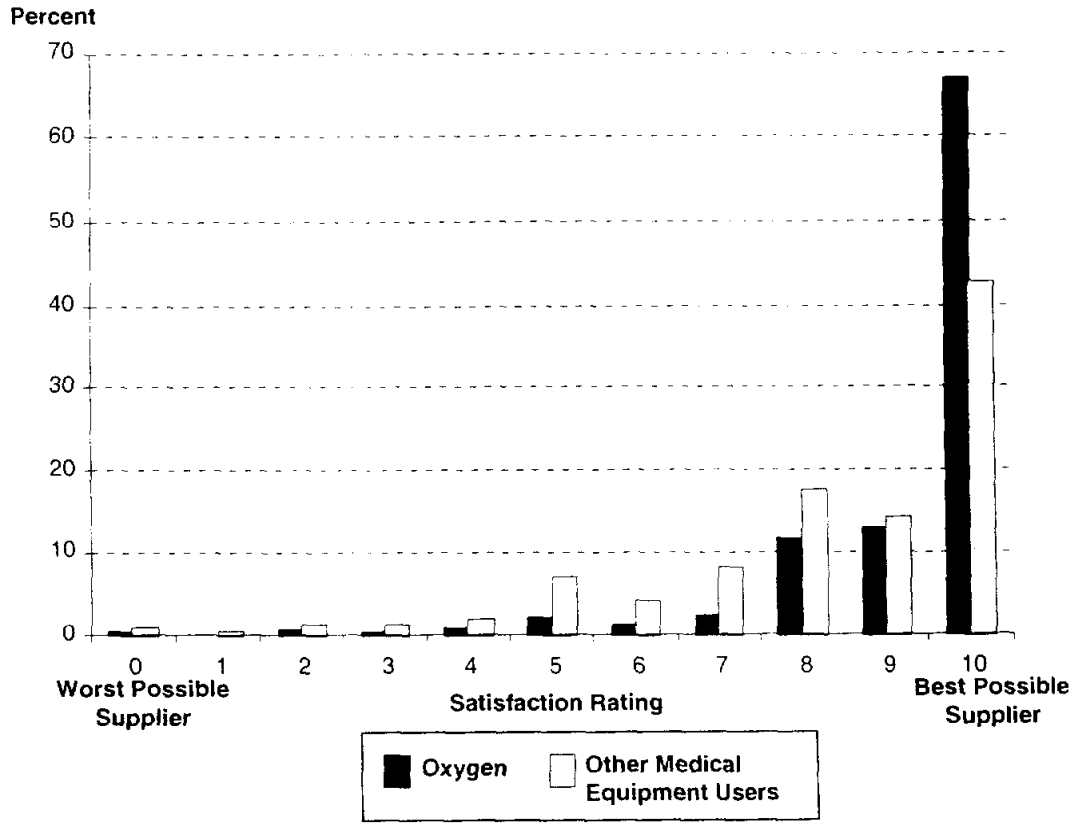

Figure B-1. Respondent Satisfaction Ratings

Source: Health Care Financing Administration. 1999a. "Medical Equipment and Supplies Consumer Survey."
Health Care Financing Administration. 1999b. "Oxygen Consumer Survey."

equipment was delivered on the same day that it was ordered, and another 22 percent received their equipment between 1 and 2 days after ordering. A much smaller percentage of other DMEPOS users (45 percent) reported that their equipment was delivered on the same day it was ordered, although another 37 percent stated that they received it between 1 and 2 days after ordering. Unlike oxygen therapy where nearly everyone received training, only 74 percent of other DMEPOS users reported being trained to use the equipment. However, of the other DMEPOS users who received training, 75 percent rated their training as either excellent or very good, about the same percentage reported for oxygen users. Oxygen users and other DMEPOS users also differed on the frequency of supplier visits. Among oxygen users, 57 percent report having had an employee come to the house at least once per month to either deliver or check

Table B-2. Respondent Ratings of Supplier Characteristics

	Oxygen Users (%)	Other DMEPOS Users (%)
Delivery of equipment after ordering		
Same day	75.0	44.9
1-2 days	21.9	36.9
3-4 days	2.0	10.1
Longer	1.1	8.1
Training		
Excellent	53.5	28.7
Very good	30.3	26.3
Good	10.5	13.3
Fair	2.4	4.5
Poor	0.2	0.9
None received	2.2	26.4
Frequency of home visits		
Once a week	3.2	5.0
Once every 2 weeks	5.1	1.6
Once a month	48.9	5.3
Once every 2 months	19.2	1.8
Once every 3-6 months	17.4	10.7
Never	6.3	75.6
Reliability		
Very reliable	94.4	79.0
Somewhat reliable	4.5	16.6
Somewhat unreliable	0.4	1.0
Very unreliable	0.7	3.3
Equipment replaced because		
It was not working right	23.4	13.8
Initiated a complaint during last 6 months	25.7	23.7
Complaint resolved satisfactorily	92.0	79.1
Needed after hours help	18.2	7.6
Received needed help	81.5	61.1

Source: Health Care Financing Administration. 1999a. "Medical Equipment and Supplies Consumer Survey."
Health Care Financing Administration. 1999b. "Oxygen Consumer Survey."

equipment. In contrast, over 75 percent of the other DMEPOS users did not have a supplier visit even once during the preceding 6 months.

These differences are most likely due to the nature of the products. Generally, suppliers deliver oxygen equipment directly to the home and deliver additional supplies, particularly portable oxygen tanks, on a routine basis. Because oxygen is potentially dangerous, careful training is required, and suppliers generally check the equipment while making deliveries. Delivery, training, and on-site servicing requirements vary for other DMEPOS equipment. Hospital beds and enteral nutrition equipment are generally delivered by the supplier, while surgical dressings, urological supplies, and some enteral nutrition supplies, such as nutritional formula, can be purchased at suppliers' outlets or received by mail. Some DMEPOS equipment (e.g., surgical dressings or urological supplies) does not require training, and other equipment (e.g., enteral nutrition) is primarily used in nursing home settings, where it is operated by trained staff. On-site servicing is also relatively uncommon for surgical dressings and urological supplies.

As noted, most oxygen users and users of other DME who received training report that the training was excellent or very good. With a mail and telephone survey, it is not possible to directly test whether this training is effective. As an indirect measure of training effectiveness, the survey asked whether users are comfortable operating their equipment. The vast majority of oxygen respondents reported that they are either very or somewhat comfortable controlling the rate of oxygen flow (nearly 80 percent), using a humidifier (nearly 80 percent), attaching regulators (86 percent), and cleaning filters (73 percent). Most of the other DME users (71 percent) also reported being either very or somewhat comfortable using and maintaining their equipment.

B.3.4 Multivariate Analysis of Satisfaction

To determine which of the variables discussed above have the largest impact on satisfaction, we performed multivariate regression analyses. Because of the differing nature of oxygen and other DMEPOS services, we performed separate analyses for oxygen users and other DMEPOS users. The regression for other DMEPOS users allowed for additional service-specific effects by including dichotomous variables for hospital beds, urological supplies, surgical dressings, and enteral nutrition equipment. We tested whether it would be appropriate to run a pooled regression on the combined data set; an F-test (not reported) strongly rejected this hypothesis.

The dependent variable (satisfaction) focuses on a beneficiary's overall satisfaction with his supplier and ranges from 0 to 10. The appropriate specification for analyzing this type of

survey data is an ordered logit model. This specification takes into account the ordinal nature of the dependent variable and determines the probability that a consumer will rate his supplier in any one of the satisfaction categories based on a combination of personal and supplier characteristics.

In addition to dichotomous variables representing the DMEPOS product categories, each ordered logit model includes user-demographic and supplier-related characteristics as explanatory variables. These variables are described in the following paragraphs. The stratified means and number of observations are shown in Table B-3.

Table B-3. Means of Regression Variables Stratified by Survey

Variable Name	Range	Oxygen Mean	Other DMEPOS Mean
Satisfaction	(0-10)	9.22	8.28
Education	(0,1,2)	0.75	0.81
White	(0,1)	0.83	0.69
Lives_alone	(0,1)	0.23	0.11
Good_health	(0,1)	0.21	0.26
Atl1_year	(0,1)	0.80	0.77
Proxy	(0,1)	0.27	0.60
Polk (county)	(0,1)	0.49	0.47
(Equipment) problems	(0,1)	0.19	0.22
Same_day	(0,1)	0.75	0.46
No_contacts	(0,1)	0.06	0.76
Few_contacts	(0,1)	0.38	0.13
Many_contacts	(0,1)	0.57	0.11
No_Training	(0,1)	0.02	0.26
Good,_Fair,_or_Poor_Training	(0,1)	0.13	0.19
Very_Good_Training	(0,1)	0.31	0.26
Excellent_Training	(0,1)	0.54	0.29

Source: Health Care Financing Administration. 1999a. "Medical Equipment and Supplies Consumer Survey."
Health Care Financing Administration. 1999b. "Oxygen Consumer Survey."

Seven user demographic variables are included. The variable *Education* represents the respondents' education level. Those who had not graduated high school were assigned a 0; high school graduates, GEDs, and those who completed some college or technical school were assigned a 1; and college graduates and those who had more than a 4-year college degree were

assigned a 2. The variable *White* identifies the respondents' race and ethnicity, though only to the extent that it distinguishes between non-Hispanic whites and all other races. Other variables include whether the beneficiary lives alone (*Lives_alone*), reported his health status as at least "good" as opposed to "fair" or "poor" (*Good_health*), and whether he has been using his equipment for at least 1 year (*Atl1_year*). To test whether the use of a proxy respondent implies differential levels of satisfaction, we include the variable *Proxy*. Although we do not expect differences in baseline responses between the demonstration and control locations, we include the variable *Polk* (county) to test this hypothesis.

Supplier characteristics include the variable, *Problems*, identifying those respondents who reported having major problems with their equipment in the last 6 months. *Same_day* is a variable indicating whether the equipment was delivered on the same day that it was ordered. The dichotomous variables *No_contacts*, *Few_contacts*, and *Many_contacts* indicate the level of face-to-face contact the respondent had with his supplier. They signify, respectively, no face-to-face contact, between one and five contacts over the prior 6 months, or greater than five contacts over this time period (i.e., at least monthly visits). We distinguished between few and many contacts because of concern that multiple contacts might be the result of problems with the supplier and/or the equipment and thus would have a negative impact on satisfaction. The regressions also include a variable signifying that the respondent did not receive training (*No_Training*), and three additional dichotomous variables identifying whether the training was excellent; very good; or good, fair, or poor.

The regression results are presented in Table B-4. The other DMEPOS regression reveals that, after adjusting for the levels of the other independent variables, urinary devices is the only type of DMEPOS equipment significantly associated with differential levels of satisfaction.

Both regressions reveal a strong relationship between training and beneficiary satisfaction. Allowing the variable *very_good_training* to represent the omitted reference category, those responding that they received *excellent_ training* rated their suppliers higher, and those receiving either *good,_fair,_or_poor_training* downgraded their suppliers. Oxygen users who did not receive training were less satisfied with their supplier, while *No_training* is not significant in the other DMEPOS regression.[1] This finding may reflect the relative difficulty of operating oxygen equipment as compared to the other DMEPOS products. The *Same_day* coefficient is positive and extremely significant in both specifications, revealing that customers are likely to rate their

[1]Specification tests (not reported) rejected the hypothesis that this coefficient varies by DMEPOS product type.

Table B-4. Ordered Logistic Regression Results Concerning Overall Satisfaction

Variable Name	Oxygen Users	Other DMEPOS Users
Oxygen	—	—
Cover	—	–0.16(0.30)
Bed equipment	—	0.23(0.26)
Urinary devices	—	0.56[a](0.27)
Feeding supplies	—	0.30(0.35)
Excellent_Training	1.20[a]	1.42[a]
Good,_Fair,_or_Poor_Training	–1.36[a]	–1.19[a]
No_Training	–1.88[a]	–0.24
Same_day	0.67[a](0.17)	0.69[a](0.20)
Problems	–0.27(0.19)	–0.44(0.25)
No_contacts	–0.81[a](0.32)	–0.18(0.29)
Many_contacts	0.55[a](0.16)	–0.18
White	0.16(0.21)	0.42[a](0.22)
Education	–0.34[a](0.12)	–0.15(0.14)
Atl1_year	–0.15(0.20)	0.07(0.24)
Lives_alone	–0.06(0.19)	–0.08(0.33)
Health	–0.03(0.20)	0.57[a](0.23)
Proxy	–0.27(0.17)	–0.11(0.22)
Polk	0.18(0.16)	–0.19(0.20)

[a]Indicates significance at the 0.05 level.

Source: Health Care Financing Administration. 1999a. "Medical Equipment and Supplies Consumer Survey."
Health Care Financing Administration. 1999b. "Oxygen Consumer Survey."

suppliers higher if they receive the equipment promptly. The coefficient associated with an increase in equipment problems (*Problems*) is negative, although insignificant, in both specifications.

The two included contact variables measure the marginal influence that these variables have on satisfaction as compared to the omitted reference category, *few_contacts*. In the oxygen regression, compared to those in the reference category, those who had significant contact rated their suppliers higher, while those who had no contact were less satisfied. These variables were

insignificant in the other DMEPOS regression.[2] This again may reflect the differing nature of oxygen and other DMEPOS products. Oxygen equipment is more complicated and requires more maintenance than other DMEPOS equipment. Moreover, many oxygen users receive regular deliveries of portable oxygen tanks. Therefore, we expect that ongoing contact with the oxygen supplier is likely to be related to training, maintenance, or delivery service and should be positively correlated with satisfaction. The correlation between contacts and supplier satisfaction for the other DMEPOS equipment is less clear; this equipment requires minimal training and maintenance. The regression results are consistent with these expectations. In summary, these results combine to suggest that consumers are acutely aware of the service they receive from their suppliers, and they reward higher quality service with higher satisfaction ratings.

The coefficients on the demographic variables yield some interesting results. The race coefficient (*White*) is positive in both regressions and significant in the other DMEPOS specification. White respondents may be receiving better service, or they may be less critical of their suppliers' performance than their nonwhite counterparts. The variable signifying greater education is negative in both regressions and significant in the oxygen specification. Although this result is difficult to explain, individuals with more education may have greater expectations and therefore may be more critical in evaluating their suppliers' conduct. The length of time that an individual has been using the equipment and whether they live alone appear to have no effect on satisfaction ratings. The other DMEPOS specification shows a positive and significant effect associated with the health status of the beneficiary. It has been suggested that an individual who is positive about his own health is more likely to be positive about his supplier's performance (Piette, 1999). We find no evidence that the use of a proxy respondent is correlated with perceived satisfaction. We also do not find any systematic differences in satisfaction across counties (*Polk*), suggesting that Brevard County was an appropriate choice for comparison.

B.4 Discussion

Reported satisfaction ratings for DMEPOS suppliers (in selected Florida counties) are very high. To put these findings in perspective, it is worth considering satisfaction ratings for other health care services. Our questions on satisfaction were derived from similar questions on the Consumer Assessment of Health Plans Study (CAHPS™). The CAHPS™ survey focuses on patients' experiences with several dimensions of medical care and contains four questions asking consumers to rate the following on a scale from 0 to 10:

---

[2]We tested whether these coefficients vary by DMEPOS product type, and rejected this hypothesis in all cases.

- their personal physician,
- the specialist seen most often in the last 6 months,
- the health care received in the previous 6 months, and
- the performance of the health plan itself.

Early CAHPS™ results show mean ratings ranging from a low of 7.6 regarding the health plan to a high of 8.1 for both the personal doctor and the specialist (Fowler, Gallagher, and Nederend, 1999). Nationwide, the average ranking for Medicare managed care plans in 1998 was 8.7 out of 10 (Beeuwkes, 1999), and the percentage of enrollees in Florida who rated their health plan as a 10 was 47 percent (Medicare and You, 2000). In comparison, our results reveal the average rating for oxygen suppliers was 9.2, and the average rating for other DMEPOS suppliers was 8.3. Sixty-seven percent of oxygen users and 43 percent of other DME users gave their supplier the highest possible rating. Obviously, managed care is a very different service than DME and the usual cautions about comparing apples to oranges apply; nevertheless, these results add perspective to the overall high satisfaction ratings for DME suppliers. The ratings for oxygen suppliers appear higher than satisfaction ratings for other health care services. The ratings for suppliers of other DMEPOS services are also high but closer to those for other health care services.

Comparing satisfaction with oxygen suppliers and satisfaction with other DMEPOS suppliers, we see that fast delivery and quality training are associated with higher satisfaction for both types of suppliers. In contrast, frequency of contact with the supplier is positively associated with satisfaction with oxygen suppliers, but it is not significantly associated with satisfaction with other DMEPOS suppliers. Not surprisingly, oxygen suppliers visit beneficiaries more frequently than suppliers of other DMEPOS.

Because our study was limited to two Florida counties, the high satisfaction levels recorded for oxygen and other DMEPOS suppliers may not generalize to suppliers in other locations. However, there were no significant differences between the two counties in beneficiary satisfaction, and Medicare reimbursement policies in the counties at the time of the surveys were similar to those in the rest of the country. Thus, it is not inconceivable that the results will generalize to other areas.

Given the high baseline levels of beneficiary satisfaction with DME suppliers, the next important question is whether policy initiatives, such as reductions in reimbursement or the DMEPOS Competitive Bidding Demonstration, will affect beneficiary satisfaction. Because the baseline satisfaction levels are already so high, it is almost statistically impossible for the

initiatives to cause satisfaction ratings to increase. Thus, if changes in satisfaction are to be observed, they are likely to be negative. Conceptually, a DME supplier might be expected to lower service quality, and therefore costs, in response to the tightening margins caused by reductions in reimbursement levels or the competitive bidding demonstration project (to the extent that it reduces fees). Opposing this incentive is the fact that reductions in quality are likely to reduce beneficiary satisfaction, and a supplier must still compete to attract customers. It will be important to evaluate how this tradeoff plays out as the policy initiatives are implemented. Our analysis provides a useful baseline for this evaluation, with data on both satisfaction as well as quality and service variables that are clearly associated with satisfaction.

B.5 Acknowledgments

We thank Claire Gibbons, Kay Jewell, Sarita Karon, and Amy Wofford for their assistance in developing the survey instruments. Amy Wofford served as survey manager, and Kristine Broglio provided data analysis.

B.6 References

Beeuwkes, B.: Risk Selection and Product Differentiation in Medicare HMOs. Unpublished manuscript. Harvard University. 1999.

Department of Health and Human Services, Office of Inspector General (DHHS/OIG): A Comparison of Albuterol Sulfate Prices. Report Number OEI-03-94-00392. June 1996a.

Department of Health and Human Services, Office of Inspector General (DHHS/OIG): Durable Medical Equipment Payments in Nursing Homes. Report Number OEI-06-92-00862. March 1996b.

Department of Health and Human Services, Office of Inspector General (DHHS/OIG): Enteral Nutrient Payments in Nursing Homes. Report Number OEI-06-92-00861. March 1996c.

Department of Health and Human Services, Office of Inspector General (DHHS/OIG): Payments for Enteral Nutrition: Medicare and Other Payers. Report Number OEI-03-96-00021. May 1996d.

Fowler, F.J., P.M. Gallagher, and S. Nederend: Comparing Telephone and Mail Responses to the CAHPS Survey Instrument. *Medical Care* 37(3,Supplement):MS41-49, 1999.

Health Care Financing Administration. 1999a. "Medical Equipment and Supplies Consumer Survey."

Health Care Financing Administration. 1999b. "Oxygen Consumer Survey."

Medicare and You. <www.medicare.gov/comparison/plansearch/QualityResults.asp>. 2000.

Piette, J.D.: Satisfaction With Care Among Patients With Diabetes in Two Public Health Care Systems. *Medical Care* 37(6):538-546, 1999.

The Board of Trustees, Federal Hospital Insurance Trust Fund: 1999 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund. 1999.

Turner, C.F., B.H. Forsyth, S.C. Weeless, M.B. Whitt, D.K. Pate, T.K. Smith, and F.J. Mierzwa: Field Test of Medicare Beneficiary Health Status Registry: Major Findings and Recommendations. Research Triangle Park, NC: Research Triangle Institute. 1994.

U.S. General Accounting Office (GAO): Medicare: Home Oxygen Program Warrants Continued HCFA Attention. Report to the Chairman, Committee on Finance, U.S. Senate. Report Number GAO/HEHS-98-17. November 1997.