

Department of Health and Human Services

**OFFICE OF  
INSPECTOR GENERAL**

**MEDICARE HOME OXYGEN  
EQUIPMENT:  
COST AND SERVICING**



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Inspector General

September 2006  
OEI-09-04-00420

# *Office of Inspector General*

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## OBJECTIVE

To (1) compare Medicare spending for oxygen concentrators with suppliers' average purchase price and (2) determine the nature and frequency of servicing for concentrators and portable equipment.

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## BACKGROUND

Section 1834(a)(5) of the Social Security Act authorizes Medicare payment for home oxygen equipment under its durable medical equipment (DME) benefit. DME is defined as equipment that can withstand repeated use, is used primarily to serve a medical purpose, and is appropriate for use in a beneficiary's home. Medicare covers both stationary and portable oxygen delivery systems, which were payable on a rental-only basis from 1989 (the year in which Medicare implemented the DME fee schedule) until 2006.

The monthly allowance for stationary oxygen equipment covers the oxygen equipment; oxygen contents including all refills for stationary and portable systems; equipment delivery, setup, and maintenance; accessories and supplies; patient education; and other services associated with furnishing home oxygen. Medicare pays an additional amount for portable equipment that a beneficiary rents to provide mobility in the home. Typically, beneficiaries rent both stationary and portable units.

Although Medicare has reduced the payment rates for home oxygen equipment three times since 1989, this equipment still consumes a large share of Medicare spending for DME. The Balanced Budget Act of 1997 reduced the rates by 25 percent effective January 1, 1998, and an additional 5 percent effective January 1, 1999. In 2005, Medicare further reduced payment rates by an average of 8.6 percent for stationary oxygen equipment and 8.1 percent for portable oxygen equipment. In 2004, home oxygen equipment accounted for 24 percent (\$2.7 billion of \$11.1 billion) of all Medicare spending for DME, prosthetics, orthotics, and supplies.

The Deficit Reduction Act (Public Law 109-171), signed into law on February 8, 2006, ended the longstanding rental-only payment policy for home oxygen equipment. The law limits rental payments to 36 months of continuous use. After this threshold is reached, suppliers must transfer title of the equipment to the beneficiary; however, under a proposed rule that the Centers for Medicare & Medicaid Services

(CMS) published in August 2006, suppliers would receive payments for certain maintenance and servicing. The President's fiscal year 2007 budget proposes further reform and would limit the rental period to 13 months.

We used a mail survey to collect information from suppliers that furnished oxygen equipment to 150 Medicare beneficiaries who rented oxygen equipment in 2004. Using a standardized data collection instrument, we asked suppliers to report all services they provided to the beneficiaries for the entire rental period and to submit documentation supporting each service. We also requested that suppliers report the price they paid for oxygen concentrators, which are stationary equipment, and submit a copy of the invoice. We visited suppliers in California and Florida to obtain detailed information about their operations, servicing and maintenance practices, and relationships with patients. We also accompanied suppliers on visits to patients' homes to observe delivery and setup practices as well as ongoing maintenance for oxygen equipment.

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## FINDINGS

**Based on the 2006 median fee schedule amount, Medicare will allow \$7,215 for 36 months for concentrators that cost \$587, on average, to purchase.** At today's median monthly rental rates, Medicare will allow \$7,215 for beneficiaries who started renting in January 2006 and continue renting for 36 months. Beneficiaries will incur \$1,443 in coinsurance over this period. If Medicare rental payments for oxygen concentrators were limited to 13 months, the program and its beneficiaries would save approximately \$3.2 billion over 5 years.

**Based on our analysis, minimal servicing and maintenance for concentrators and portable equipment are necessary.** Beneficiaries typically receive a concentrator, which is stationary equipment, and a portable cylinder system. Suppliers train beneficiaries to perform limited routine maintenance. Based on our survey, suppliers check concentrators every 4 months on average, a frequency that exceeds manufacturers' guidelines. Maintenance for a portable system primarily consists of picking up empty cylinders and delivering full ones.

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## RECOMMENDATIONS

Recent legislation limits the rental period for home oxygen equipment and directs the Secretary to pay for maintenance and servicing after the rental period ends if the Secretary determines such payments are reasonable and necessary. Concentrators require and receive limited servicing in beneficiaries' homes. Medicare will continue to pay for portable contents. Therefore, we recommend that CMS:

**Work with Congress to further reduce the rental period for oxygen equipment.** The Deficit Reduction Act ended the longstanding rental-only payment policy for oxygen equipment, but further reform is warranted. Medicare and its beneficiaries will continue to pay more than 12 times the purchase price for concentrators under the new 36-month rental limitation.

**Determine the necessity and frequency of nonroutine maintenance and servicing for concentrators.** Suppliers most commonly perform routine servicing that Medicare does not cover for DME that beneficiaries own. CMS needs to determine the necessity and frequency of nonroutine servicing, which is covered by Medicare, and appropriate reimbursement.

**Determine if a new payment methodology is appropriate for portable oxygen systems.** Unlike concentrators, portable oxygen systems require refills and suppliers pick up empty cylinders and deliver full ones. Ongoing monthly payments for cylinder contents only may not adequately reimburse suppliers for providing refills.

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## AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

CMS concurred with our recommendations. The agency noted that the President's budget for fiscal year 2007 proposed reducing the rental period for oxygen equipment to 13 months. Furthermore, CMS stated that its proposed rule, published on August 3, 2006, addresses the payment methods for nonroutine maintenance and servicing, as well as for portable oxygen systems.

CMS expressed concern that our savings estimate for a 13-month rental limit is too high, because it includes beneficiaries' savings and does not reflect payments for maintenance and servicing, potential shifts in utilization, or factors that the Congressional Budget Office (CBO) and CMS's Office of the Actuary would consider. We acknowledge that,

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based on these factors, our calculation would likely result in a higher estimate than CBO or CMS estimates.

▶ T A B L E O F C O N T E N T S

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## OBJECTIVE

To (1) compare Medicare spending for oxygen concentrators with suppliers' average purchase price and (2) determine the nature and frequency of servicing for concentrators and portable equipment.

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## BACKGROUND

Section 1834(a)(5) of the Social Security Act (the Act) authorizes Medicare payment for home oxygen equipment under its durable medical equipment (DME) benefit. DME is defined as equipment that can withstand repeated use, is used primarily to serve a medical purpose, and is appropriate for use in a patient's home (42 CFR § 414.202). Medicare Part B covers both stationary and portable oxygen delivery systems.

Stationary systems include concentrators, which concentrate the oxygen in room air, and stationary gas and liquid systems. Portable systems include portable concentrators, as well as gas and liquid oxygen systems. A portable gas system consists of a cylinder, which stores pressurized oxygen, and a regulator, which controls the flow of oxygen from the cylinder. A portable liquid oxygen unit is a small unit filled with oxygen cooled to a very low temperature.<sup>1</sup>

Until January 1, 2006, Medicare paid a monthly rental fee for home oxygen equipment as long as it was medically necessary. Section 5101(b)(1) of the Deficit Reduction Act (DRA) eliminated indefinite rental for this equipment and limited it to 36 months, effective January 1, 2006.

Rental payments for oxygen equipment are based on monthly fee schedule allowances that vary by State. The basis for these allowances is the average payment that Medicare made in each State in 1986. The fee schedule amounts generally are adjusted annually based on the change in the Consumer Price Index (42 CFR § 414.226). The fee schedule amounts are limited by a ceiling (upper limit) and floor (lower limit) equal to 100 percent and 85 percent, respectively, of the median of the statewide fee schedule amounts. Medicare pays 80 percent of the

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<sup>1</sup> Centers for Medicare & Medicaid Services, Coverage Issues Manual, DME: Home Use of Oxygen, 60-4.

fee schedule amount and beneficiaries are responsible for 20-percent coinsurance as long as they rent oxygen equipment.

The monthly allowance for stationary oxygen equipment covers the oxygen equipment; oxygen contents including all refills for stationary and portable systems; equipment delivery, setup, and maintenance; accessories and supplies; patient education; and other services associated with furnishing home oxygen. Medicare pays an add-on, or additional amount, for portable equipment that a beneficiary rents to provide mobility in the home. Typically, beneficiaries rent both stationary and portable units. Suppliers of oxygen equipment submit claims to the DME Regional Carriers for processing and payment.

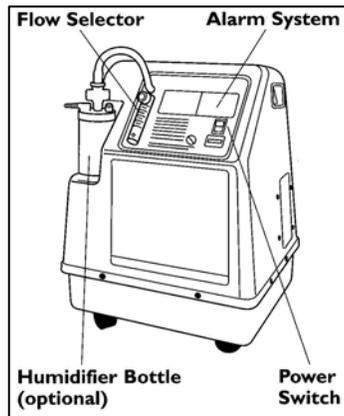
Since implementation of the fee schedule, Medicare has reduced the payment rates for home oxygen equipment three times. The Balanced Budget Act of 1997 reduced the rates by 25 percent effective January 1, 1998, and an additional 5 percent effective January 1, 1999. Section 302(c)(2) of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) required the Centers for Medicare & Medicaid Services (CMS) to reduce payments for oxygen and oxygen equipment based on the percentage difference between the 2002 Medicare fee schedule amount for each State and the median prices paid by Federal Employees Health Benefits (FEHB) plans. In 2005, Medicare reduced payment rates by an average of 8.6 percent for stationary oxygen equipment and 8.1 percent for portable oxygen equipment based on the Office of Inspector General (OIG) report “Medicare and FEHB Payment Rates for Home Oxygen Equipment” (OEI-09-03-00160, Revised), which compared Medicare payments to the rates paid by FEHB plans.

### **Medicare Spends \$2.3 Billion To Rent Oxygen Concentrators for Approximately 1.3 Million Beneficiaries**

Nearly all Medicare beneficiaries who rent home oxygen equipment rent concentrators. Approximately 1.3 million beneficiaries rented them in 2004. Based on Medicare paid claims data, Medicare spends significantly more money on concentrators than on any other type of home oxygen equipment. In 2004, concentrator rentals accounted for 84 percent, or \$2.3 billion, of all Medicare spending for home oxygen equipment and supplies.

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Figure 1  
Oxygen Concentrator  
The concentrator is a stationary device that concentrates the oxygen in room air.



Source: Patient Instructions from Oxygen Supplier, 2005.

A typical concentrator weighs approximately 50 pounds and is approximately 2 feet high. (See Figure 1.) In addition to the concentrator, Medicare pays for a portable cylinder system, which provides backup in the event of a power outage as well as mobility in the home. The cylinder is filled with gaseous oxygen. When suppliers deliver the stationary and portable systems, they also furnish accessories, including oxygen tubing and a nasal

cannula. The tubing is attached to the outlet on the concentrator or cylinder and the oxygen is delivered through the nasal cannula, which the patient wears. The tubing, available in different lengths, allows the patient to move around the home. Portable oxygen cylinders are available in different sizes. Patients transport the cylinders in a cart or carrying case, such as a shoulder bag.

## **Payment Categories for DME**

Under Medicare Part B, all DME is classified into one of several payment categories. Each payment category has distinct payment methodologies that govern how Medicare pays for the equipment (see section 1834(a) of the Act and 42 CFR § 414.210.)

Oxygen and oxygen equipment. Medicare pays for oxygen contents (liquid and gas) and oxygen equipment on a monthly basis. Until Congress modified the longstanding payment method in 2006, Medicare allowed indefinite rental for stationary and portable equipment. (See discussion of this new method on the following page.) Effective January 1, 2006, payments for stationary and portable equipment will cease after 36 months of continuous rental. Medicare has and will continue to pay separately for portable oxygen contents based on a beneficiary's continuing need.

Inexpensive or other routinely purchased items. Inexpensive DME is defined as equipment for which the purchase price does not exceed \$150. Routinely purchased DME is defined as equipment acquired by purchase at least 75 percent of the time. Medicare will purchase or rent equipment in this category; however, total payments may not exceed

the fee schedule purchase amount. Examples of items in this category include canes, walkers, and crutches.

*Items requiring frequent and substantial servicing.* This category includes items requiring frequent and substantial servicing in order to avoid risk to the beneficiary's health. Examples include passive motion exercise devices and infusion pumps used for administration of certain medication. For these items Medicare pays for rental only.

*Customized items.* This category includes items uniquely constructed or substantially modified to meet the specific needs of an individual beneficiary. For these items Medicare pays for purchase only.

*Capped rental.* The capped rental category includes all other equipment that does not fall into one of the other payment categories. Medicare currently limits, or caps, rental payments for approximately 149 items, including hospital beds and wheelchairs. Effective January 1, 2006, carriers pay monthly fee schedule amounts for these items for a period not to exceed 13 consecutive months, at which time title to the equipment transfers to the beneficiary. Medicare will continue to pay for reasonable and necessary servicing and maintenance after the end of the rental period.

*Other covered items (other than DME).* This category includes supplies that are payable for purchase.

### **New Payment Methodologies**

The DRA, signed into law on February 8, 2006, changed the reimbursement methodology for home oxygen equipment from continuous rental to capped rental, effective January 1, 2006. The DRA limits rental payments for home oxygen equipment to 36 months of continuous use. After 36 months, suppliers must transfer title of the equipment to the beneficiary, but they may receive payments for nonroutine maintenance and servicing.

The President's proposed budget for fiscal year 2007 would further reform the payment methodology for all home oxygen equipment. The budget proposes limiting rental payments for home oxygen equipment to 13 months of continuous use.

In August 2006, CMS issued a proposed rule implementing DRA's provisions governing Medicare payment for oxygen equipment and capped rental DME (71 FR 44082, August 3, 2006). CMS proposes to establish a new variable rate structure for different classes of oxygen and oxygen equipment, with monthly payments tied more closely to the

costs of each class. For example, under this proposed rule, the monthly payment rate for stationary concentrators would be reduced to \$177, while payments for portable concentrators and transfilling systems would increase. Medicare would also cover nonroutine maintenance for beneficiary-owned equipment that an authorized technician would need to perform. Pursuant to current policy, CMS would not cover routine maintenance, including testing, cleaning, and changing filters, after beneficiaries reach the 36-month cap and assume ownership of their equipment.

### **Alternative Payment Methodologies**

Section 302(b)(1) of the MMA mandated competitive bidding for certain DME in urban areas beginning in 2007. One aim of the initiative is to reduce Medicare payments. CMS tested the feasibility of competitive bidding at two sites from 1999 to 2002 and achieved average price reductions ranging from 19 percent to 22 percent for home oxygen equipment.

The Veterans Affairs (VA) Medical Center in Tampa, Florida, was the first VA facility in the United States to purchase concentrators rather than renting them indefinitely or capping the rental period. This facility, which started buying concentrators in 1999, now purchases from a local manufacturer and contracts with a supplier to deliver and maintain the equipment. VA has contracted with the same supplier for servicing since the program began and pays \$895 to purchase a concentrator, \$90 for delivery, and \$48 for annual maintenance. VA acknowledges that \$895 is not the lowest price available but pays more because the manufacturer is nearby, and the proximity facilitates communication and exchanges of equipment. The VA Medical Center serves an average of 825 oxygen patients per month, two-thirds of whom are eligible for Medicare.

Like Medicare, the VA Medical Center in Atlanta, Georgia, rents all of its equipment and pays twice as much per month as the Tampa medical center. Tampa's monthly costs are \$100.27; Atlanta's monthly costs are \$217.

### **Prior Inspector General Work**

OIG has previously examined the servicing and payment methods for respiratory equipment, which includes home oxygen equipment and other respiratory devices. In addition to the report comparing Medicare payment rates for home oxygen equipment to the rates paid by FEHB plans (mentioned on page 2), OIG assessed the servicing for a

respiratory assist device with bilevel capability and a backup rate in the June 2001 report, “Respiratory Assist Devices With Back-up Rate” (OEI-07-99-00440). OIG concluded that the equipment belonged in the capped rental payment category rather than the frequent and substantial servicing category. OIG recommended that CMS reclassify the device. In January 2006, CMS issued a final rule implementing OIG’s recommendation (71 FR 4518, January 27, 2006).

In June 1999, OIG issued the report, “Home Oxygen Therapy Profiles” (OEI-03-96-00092), which assessed the nature and frequency of servicing for home oxygen equipment. In November 1994, OIG issued “Oxygen Concentrator Services” (OEI-03-91-01710), which documented the wide variation in the servicing that suppliers provided.

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## METHODOLOGY

We based this review on a simple random sample of Medicare beneficiaries who rented home oxygen equipment in calendar year (CY) 2004 and information about the cost and rental history of the concentrators these beneficiaries used.

### Scope

This review is national in scope and focuses on the cost of concentrators that beneficiaries rent, as well as the nature and frequency of services that oxygen equipment suppliers provide to beneficiaries in their homes. This report addresses neither the cost of providing these services nor such ancillary expenses as billing, processing the physician’s order, regulatory compliance, and equipment maintenance outside the home. These costs are reflected in the fee schedule amounts, which are based on historical charges by suppliers.

### Sample Selection

Using the 100-percent National Claims History database for services rendered in CY 2004, we selected a simple random sample of 150 Medicare beneficiaries. We selected this sample from a population of 448,974 beneficiaries for whom Medicare paid a monthly rental for an oxygen concentrator (E1390) during 2004 but not for any stationary oxygen equipment during 2003 (E1390, E0439, E0424) so that the sample would consist of new users of oxygen concentrators.

### Data Collection and Analysis

We surveyed by mail all of the suppliers that provided equipment to the beneficiaries in our sample. Using a standardized data collection instrument, we requested that suppliers report all services they

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provided to the beneficiaries for the entire rental period and submit documentation supporting each service. We counted services if the supplier documented them but did not report them on the instrument. We also asked suppliers to report and document the price that they paid for the concentrator that the sampled beneficiary used, as well as the number of previous users of the equipment (both Medicare and non-Medicare). The suppliers provided data on 145 of the 150 beneficiaries in our sample, which yielded a 97-percent response rate.

In addition to surveying suppliers by mail, we visited several suppliers in California and Florida to obtain detailed information about their operations, servicing and maintenance practices, and relationships with beneficiaries. We visited suppliers in California because of their proximity to our office and suppliers in Florida because of their location near the VA Medical Center in Tampa. All of the suppliers invited us to accompany them during routine patient visits to observe delivery and setup practices as well as ongoing maintenance. We visited the VA Medical Center in Tampa to interview staff about their longstanding purchase program for home oxygen equipment. Finally, we accompanied VA staff on home visits to oxygen patients.

We also analyzed National Claims History data from CYs 1994 to 2004 for a 1-percent sample of Medicare beneficiaries to estimate the savings associated with different payment methods.

See Appendix A for the confidence intervals for selected statistics and Appendix B for the methodology for calculating the savings associated with limiting the rental period for oxygen concentrators to 13 months.

This study was conducted in accordance with the “Quality Standards for Inspections” issued by the President’s Council on Integrity and Efficiency and the Executive Council on Integrity and Efficiency.

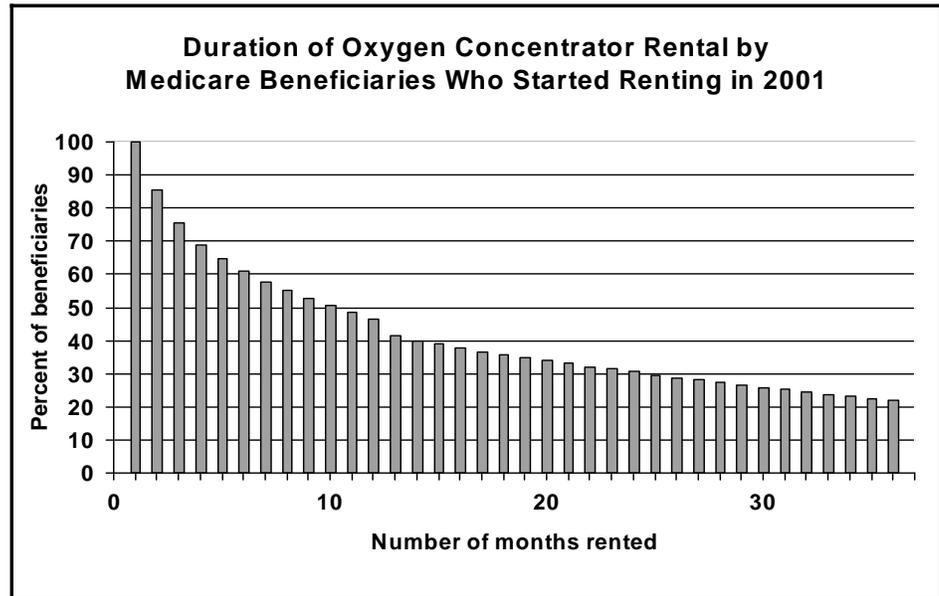
► FINDINGS

**Based on the 2006 median fee schedule amount, Medicare will allow \$7,215 for 36 months for concentrators that cost \$587, on average, to purchase**

The DRA limits rental payments for oxygen equipment to 36 months of continuous use. Based on our analysis of Medicare paid claims data,

approximately 46 percent of beneficiaries who started renting their equipment in 2001 rented continuously for at least 12 months, while 22 percent rented for 36 months or longer.<sup>2</sup> (See Figure 2.)

Figure 2  
Duration of Rental  
Twenty-two percent of Medicare beneficiaries rent for 36 months or longer.



Source: Office of Inspector General analysis, 2006.

The median Medicare monthly fee schedule allowance for concentrators is \$200.41 as of January 2006. The monthly rental payment is the same for both new and used concentrators. Based on this fee schedule amount, Medicare will allow \$7,215 for beneficiaries who started renting in January 2006 and continue renting for 36 months.

**The average cost of a new concentrator is \$587**

Based on invoices and other documentation from suppliers and manufacturers associated with our sample of beneficiaries, new oxygen concentrators cost \$587 each, on average. (See Appendix A for

<sup>2</sup> We used the definition of continuous use found in the Medicare Claims Processing Manual (publication 100-04), chapter 20, section 30.5.4. A rental period is continuous even if there are gaps of up to 60 days between rental months.

## F I N D I N G S

confidence interval.) We based this estimate on the prices for new concentrators purchased between 2000 and 2004 and rented to beneficiaries in our sample. These prices reflect volume discounts that manufacturers offer routinely. Suppliers reported that they also received prompt pay discounts and rebates for one-third of the concentrators that sampled beneficiaries rented. The prices that suppliers reported typically did not reflect these prompt pay discounts and rebates and, therefore, are not included in our estimate of the average concentrator price.

### **Beneficiaries' coinsurance for a 36-month rental is more than twice the average cost of a new concentrator**

Based on a 36-month rental period at the 2006 median fee schedule amount, beneficiaries will incur \$1,443 in coinsurance. Since the average cost of a concentrator is \$587, the coinsurance exceeds the average cost of two concentrators by \$269.

### **If Medicare rental payments for oxygen concentrators were limited to 13 months, the program and its beneficiaries would realize considerable savings**

The DRA changed the reimbursement methodology for capped rental items, except oxygen equipment, by reducing the rental period from 15 months to 13 months. The President's budget for fiscal year 2007 would limit the rental period for oxygen equipment to 13 months.

We calculated potential savings for concentrators if the rental period were 13 months instead of 36 months and found that Medicare and its beneficiaries would save approximately \$3.2 billion over 5 years. To estimate these savings, we used the 2006 median fee schedule amount of \$200.41 for rental of an oxygen concentrator. Our estimate does not include any allowances for maintenance and servicing or potential shifts in utilization to other oxygen modalities such as portable concentrators and transfilling systems. These factors would likely result in lower savings than our estimate. In addition, our estimate includes beneficiaries' coinsurance and premium-related costs, which amount to approximately 40 percent of our calculated savings. (See Appendix B for a more detailed discussion of our methodology.)

## F I N D I N G S

### **Suppliers commonly provide used concentrators to Medicare beneficiaries**

Suppliers rented used concentrators to 73 percent of sampled beneficiaries. On average, the concentrators were 2½ years old. For example:

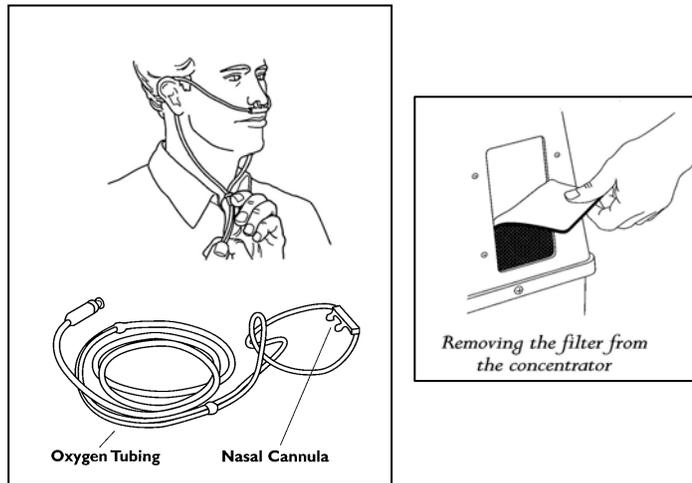
- One beneficiary in our sample was the 17<sup>th</sup> person to rent a concentrator that the supplier purchased in 1996.
- Another beneficiary was the 16<sup>th</sup> person to use a concentrator that was purchased in 1997.
- One beneficiary rented a concentrator that the supplier purchased in 1988 for \$745. The supplier calculated that revenue from that concentrator totaled \$11,530.58.
- Medicare allowed \$7,554 for another unit rented by a sampled beneficiary. The supplier paid \$546 for the concentrator in 2002. The sampled beneficiary rented it for 1½ months. Another Medicare beneficiary had rented this concentrator for 2½ years before the sampled beneficiary started renting it.
- Medicare allowed \$7,260 for a single concentrator that one sampled beneficiary rented. This total reflects the allowance for one previous Medicare beneficiary who rented the equipment for 2¼ years. The supplier bought this equipment for \$617 in 2001.

Despite the fact that suppliers routinely rent used equipment to Medicare beneficiaries, only 6 percent of the concentrators used by sampled beneficiaries malfunctioned at any time during their rental period. Based on our sample and discussions with suppliers, when a concentrator malfunctions, the supplier typically replaces it with another unit rather than repairing the malfunctioning unit and returning it to the same beneficiary.

Suppliers reported that they exchanged the malfunctioning concentrators that were rented by 12 of 145 beneficiaries (12 concentrators). The number of previous users of the concentrators that malfunctioned ranged from 1 to 16. In at least 8 of the 12 cases, suppliers replaced the defective equipment with used concentrators (we do not have information on the remaining 4 cases).

**Based on our analysis, minimal servicing and maintenance for concentrators and portable equipment are necessary**

Figure 3  
Patients perform routine maintenance  
 Suppliers train patients to change their tubing and cannula and to clean the external filter.



Source: Patient Instructions from Oxygen Supplier, 2005.

Suppliers train beneficiaries to perform routine maintenance. Based on instructions in the educational materials that suppliers provide to beneficiaries at the time of delivery, patients must clean and change their tubing and nasal cannula on a regular basis. In addition, suppliers instruct patients to clean the concentrator’s external (dust) filter, which can be washed in a sink with soap and water. (See Figure 3.)

**Suppliers check concentrators every 4 months on average**

Among beneficiaries in our sample who rented continuously for 1 year or longer, suppliers checked their concentrators approximately once every 4 months on average.<sup>3</sup> Suppliers typically perform the same services during every visit. These services include checking the flow rate (liters per minute) prescribed by the physician and checking the concentration of oxygen delivered by the unit.

When suppliers visit beneficiaries, they often perform services that a beneficiary has been instructed to do. For example, based on our sample, 50 percent of the visits to service the concentrators included cleaning the external filter, which the beneficiary is trained to maintain.

When we accompanied suppliers on their visits to beneficiaries’ homes, we observed that routine maintenance for a concentrator consists of checking the filter to make sure it is clean and checking the oxygen

<sup>3</sup> When we counted services and calculated the statistics in this paragraph, we excluded the services provided on the first and last day of the rental period (i.e., delivery and pickup).

## FINDINGS

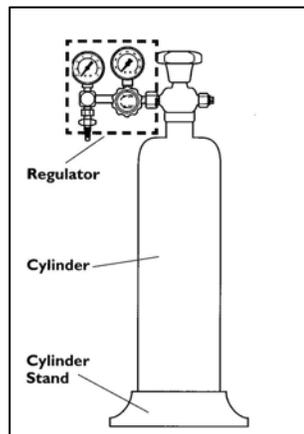
concentration and flow rate using handheld instruments—tasks that can be performed in less than 5 minutes.

Although suppliers checked concentrators every 4 months, this frequency exceeds the guidelines of two major manufacturers that accounted for two-thirds of the concentrators rented by sampled beneficiaries. According to these guidelines, comprehensive preventive maintenance need only be performed annually or after several thousand hours of use. Similarly, the VA Medical Center in Tampa covers annual maintenance only.

Suppliers often use the visits to deliver accessories, typically new tubing and cannula, that they could mail to the beneficiary. Ongoing patient education is uncommon; only 18 percent of these visits included educating beneficiaries. Furthermore, 21 percent of these visits occurred when the supplier was scheduled to deliver oxygen cylinders to the home.

Initial delivery and setup are more time-consuming because suppliers have to find appropriate places for the concentrator and portable equipment in the home and educate beneficiaries and their caregivers about the new equipment. These visits can take as long as 1 hour.

Figure 4  
Oxygen Cylinder  
Cylinders are available  
in different sizes.



Source: Patient Instructions from  
Oxygen Supplier, 2005.

### Suppliers deliver cylinders once every 3 months

Approximately 83 percent of supplier visits related to portable equipment are to “switch out” empty cylinders with full ones. (See Figure 4.) Other visits involve educating patients and delivering accessories. Among beneficiaries who rented concentrators for 1 year or more, 65 percent received two or fewer cylinders from their suppliers in the first year of rental (excluding the initial cylinder delivery). We observed that beneficiaries do not need to be at home when suppliers deliver the cylinders. In addition, we reviewed documentation indicating that, in some cases, suppliers left cylinders on the beneficiary’s porch.

The DRA mandates capped rental for both stationary and portable units after 36 months of continuous rental. Medicare will continue to pay for portable contents after 36 months on a monthly basis as long as the beneficiary requires oxygen. Currently, suppliers must provide

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whatever quantity of oxygen the beneficiary uses. Medicare reimbursement is the same, regardless of quantity. In 2006, the median monthly allowance for portable contents is \$21.41.

## ► R E C O M M E N D A T I O N S

The DRA limits the rental period for home oxygen equipment and directs the Secretary to pay for maintenance and servicing if the Secretary determines that such payments are reasonable and necessary after the rental period ends. In a proposed rule, CMS indicated that it will make such payments. Concentrators are reliable equipment that require limited servicing, as evidenced by instructions from manufacturers, the common practice of providing used equipment to beneficiaries, and the age of the concentrators that some sampled beneficiaries use. We recommend that CMS:

### **Work with Congress To Further Reduce the Rental Period for Oxygen Equipment**

Medicare and its beneficiaries will continue to pay more than 12 times the purchase price for concentrators under the new 36-month rental limitation. Therefore, a shorter rental period may be warranted.

### **Determine the Necessity and Frequency of Nonroutine Maintenance and Servicing for Concentrators**

Medicare does not cover routine servicing for DME that beneficiaries own but will cover nonroutine maintenance. Based on our sample, suppliers most commonly perform routine servicing that Medicare does not cover. However, CMS needs to determine the extent and frequency of nonroutine servicing and maintenance, as well as the appropriate reimbursement.

### **Determine if a New Payment Methodology Is Appropriate for Portable Oxygen**

Unlike concentrators, portable oxygen systems require refills, and suppliers pick up empty cylinders and deliver full ones. Currently, Medicare pays an add-on amount for portable systems; however, payment for the contents of the cylinders is bundled into the monthly rental amount for the concentrator. When beneficiaries reach the 36-month rental limit, Medicare will no longer pay for concentrators or portable systems but will pay for cylinder contents only. The monthly payment for contents (currently \$21.41 per month) does not vary based on the amount of oxygen a beneficiary requires. This payment may not adequately reimburse suppliers for providing portable refills and related services once a beneficiary has reached the 36-month rental limit. (We note that CMS included a variable rate structure in its proposed rule.)

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## AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

CMS concurred with our recommendations and noted that the President's budget for fiscal year 2007 proposed reducing the rental period for oxygen equipment to 13 months. CMS noted that its proposed rule, published on August 3, 2006, addresses nonroutine maintenance and servicing and that it would be interested in receiving comments during the comment period on the appropriate frequency of servicing schedules. The proposed rule also addresses the payment methodology for portable oxygen systems and proposes to increase the monthly payment for contents from \$21 to \$55.

In CMS's comments on the draft report, the agency expressed concern that our savings estimate for a 13-month rental limit is too high, because it does not include adjustments to payments for maintenance and servicing or potential shifts to oxygen modalities other than concentrators. We acknowledge that our estimate did not include the effect of maintenance and servicing payments or potential shifts to other types of equipment. These factors would likely result in lower savings than our estimate. CMS also notes that our methodology differs from the way that the CBO or CMS's Office of the Actuary would calculate savings. We acknowledge that CBO and CMS estimates exclude beneficiaries' coinsurance and premium-related costs, which amount to approximately 40 percent of our calculated savings. CMS's comments are included in their entirety in Appendix C.

**Confidence Intervals for Selected Statistics**

<b>Statistic</b>	<b>N</b>	<b>Point Estimate</b>	<b>95% Confidence Interval</b>
Average (mean) purchase price for new oxygen concentrators that were purchased from 2000 to 2004 and used by beneficiaries whose Medicare payments for concentrators began in 2004	119 concentrators	\$587	\$570–603
Of beneficiaries whose Medicare payments for oxygen concentrators began in 2001, proportion who rented continuously for at least 12 months	3,754 beneficiaries	46.3%	44.7–47.9%
Of beneficiaries whose Medicare payments for oxygen concentrators began in 2001, proportion who rented continuously for at least 36 months	3,754 beneficiaries	22.0%	20.7–23.3%
Of beneficiaries whose Medicare payments for oxygen concentrators began in 2004, proportion who received at least one used concentrator	145 beneficiaries	73.1%	65.9–80.3%
Average (mean) number of months from purchase or lease of equipment to beneficiary’s rental of concentrator, for concentrators rented to beneficiaries whose Medicare payments for the units began in 2004	177 concentrators	32.1 months	26.5–37.6 months
Percentage of concentrators (rented to beneficiaries whose Medicare rental payments for the units began in 2004) that malfunctioned	203 concentrators	5.9%	2.9–8.9%

**Methodology for Savings Calculation**

The table below shows potential savings for concentrators (code E1390) if the rental period were 13 months rather than 36 months.

<b>Potential Savings for Oxygen Concentrators 13-Month Limitation<sup>4</sup></b>					
<b>Duration of Rental</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>13 months</b>	0	\$1.0 billion	\$1.0 billion	\$0.6 billion	\$0.6 billion

Source: Office of Inspector General analysis of 1 percent of National Claims History for DME, prosthetics, orthotics, and supplies, 2006.

We performed the following calculations to estimate the potential savings. We used CY 2004 claims to calculate this estimate.

1. We used a 1-percent sample of allowed claims for DME, prosthetics, orthotics, and supplies rendered during CY 2004. This sample contained 102,086 E1390 claims for 12,619 beneficiaries. For each of these beneficiaries, we obtained claims data for all E1390 claims during CYs 2000 through 2004.
2. To estimate the potential savings during the second year of implementation, we used the database created in step 1. For each claim for E1390 for 2004, we determined the number of claims for the first month of rental (disregarding any concentrator rental before 2003) and similarly for months 2 through 24. In counting these beneficiary rental months, we reset the counter to month 1 if there was a break of more than 60 days in the beneficiary’s rental of the oxygen concentrator. We used this criterion so that our estimate would correspond to the definition of continuous use found in the Medicare Claims Processing Manual (publication 100-04), chapter 20, section 30.5.4. We assumed that portable oxygen contents would be paid for separately after month 13, so we included in our estimate a separate monthly payment of \$21.41, which is the median among State fee schedule amounts for

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<sup>4</sup> These potential savings reflect savings to both Medicare and its beneficiaries. If savings were limited to Medicare, they would be approximately 60 percent of the savings in the table, because beneficiaries’ coinsurance and premium-related costs would be excluded from the calculation. CBO and CMS exclude coinsurance and premium-related costs from their savings estimates. For example, total savings to Medicare would be approximately \$0.6 billion in each of Years 2 and 3 and approximately \$0.4 billion in each of Years 4 and 5.

E0443 and E0444 (portable oxygen contents). Using these amounts, we calculated savings per E1390 claim as follows:

Beneficiary's oxygen rental, months 1 through 13:

Medicare payment under 13-month limit:

Median 2006 fee schedule amount = \$200.41

Medicare payment without 13-month limit:

Median 2006 fee schedule amount = \$200.41

Medicare savings:  $\$200.41 - \$200.41 = \$0$

Beneficiary's oxygen rental, months 14 through 24:

Medicare payment under 13-month limit:

Portable contents = \$21.41

Medicare payment without 13-month limit:

Median 2006 fee schedule amount = \$200.41

Medicare savings:  $\$200.41 - \$21.41 = \$179.00$

To estimate the potential savings during the second year of implementation, we multiplied the savings above by the number of E1390 claims during CY 2004 for each of months 1 through 24 of rental, and we multiplied the result by 100 (because these 2004 claims were from a 1-percent sample). This resulted in savings of approximately \$1.0 billion.

The estimated savings for the third and subsequent years after implementation were calculated similarly.

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**DATE:** SEP 7 2006

**TO:** Daniel R. Levinson  
Inspector General  
Office of Inspector General

**FROM:** Mark B. McClellan, M.D., Ph.D.   
Administrator

**SUBJECT:** Office of Inspector General (OIG) Draft Report: "Medicare Home Oxygen Equipment: Cost and Servicing," (OEI-09-04-00420)

Thank you for the opportunity to review and comment on this OIG report which compares Medicare spending on oxygen concentrators with suppliers' average purchase price and describes the nature and frequency of servicing concentrators and portable equipment. Regarding equipment costs, the report found that the average purchase price for concentrators is \$587; under the current payment system suppliers would receive a total of \$7,215 for 36 months, a figure significantly in excess of the equipment acquisition costs. Indeed, the report finds that Medicare beneficiary coinsurance during a 36 month rental period of \$1,443 would be in excess of twice the equipment purchase price. Regarding servicing, the report finds that minimal servicing and maintenance is necessary for concentrators and portable equipment and that servicing tasks can be performed in less than 5 minutes. Notably, the report found suppliers performing services that a beneficiary could be doing. This is an important report by the OIG that concludes Medicare will continue to pay excessively for oxygen equipment, even after implementation of the provisions of the Deficit Reduction Act of 2005 (DRA) affecting oxygen equipment.

Home oxygen equipment and oxygen contents are covered under the durable medical equipment (DME) benefit and payment is made on the basis of monthly fee schedule amounts that are modality neutral (i.e. the same payment amount applies regardless of whether the patient uses a gaseous, liquid or concentrator system). Prior to passage of the DRA, these monthly payments continued for as long as medically necessary. The DRA limited Medicare payment to 36 monthly rental payments after which equipment ownership transfers to the beneficiary. The DRA did not change Medicare's current fee schedule amount of about \$200 per month. Of the \$200, Medicare pays 80 percent or \$160, and the beneficiary pays 20 percent or \$40.

The draft report provides valuable insight for the Centers for Medicare & Medicaid Services (CMS) on the suppliers' average purchase price for oxygen concentrators. The OIG report found that concentrators cost about \$587, on average, to purchase. The report also found that suppliers rented used concentrators to about 73 percent of the sampled beneficiaries. With the current \$200 monthly payment amount, suppliers would receive a total of \$7,215 for 36 months, a figure significantly in excess of the equipment acquisition costs. Medicare beneficiary coinsurance

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during a 36 month rental period would be \$1,443 and the coinsurance payments exceed the costs of purchasing two concentrators.

The draft report also provides details for CMS on the maintenance and servicing that is actually done during a supplier's visit. The report finds that minimal servicing and maintenance is necessary for concentrators and portable equipment. The report found suppliers performing services that a beneficiary could do, such as a cleaning a concentrator's external filter. This finding is based on reports from suppliers, on actual on-site observation and accompanying suppliers on their visits to beneficiaries' homes.

The report also found that suppliers checked concentrators every 4 months but it does not indicate whether servicing every 4 months is an appropriate servicing schedule. It points out that these servicing tasks take minimal time to perform and can be performed in less than 5 minutes, however, the initial delivery and set-up can take as long as one hour. Also, according to manufacturer guidelines, more comprehensive preventive maintenance need only be performed annually or after several thousand hours of use. This report substantiates that oxygen concentrators are sturdy and long lasting equipment that require minimal maintenance and servicing. This information is very useful as CMS develops policy on maintenance and servicing for beneficiary-owned oxygen equipment.

The draft report also provides information on the refilling of contents for portable systems. Unlike concentrators, most portable oxygen systems require refilling tanks. The exceptions are the new technology of oxygen equipment such as the transfilling machines and the portable concentrators. The report found that suppliers picked up empty tanks and delivered full ones once every 3 months. As the report indicates, after ownership of equipment, Medicare will make a separate payment for refilling portable tanks, currently about \$21 per month and that such payment amount may not be an adequate amount to reimburse suppliers for providing portable refills. The appropriateness of current payment structure for beneficiary owned oxygen equipment has been amplified in light of the recent changes by the DRA. This is critical information as CMS develops policy for beneficiary-owned equipment, specifically for portable systems.

Finally, the report contains an estimate of the savings for a policy that would reduce the number of months for which Medicare would make rental payments for oxygen concentrators from 36 to 13 months. We are concerned that the savings estimate presented in Table 1 for such policy is too high. As the report indicates, this estimate does not include an offset for separate payments that Medicare would make for maintenance and servicing after ownership transfers to a beneficiary after 13 months under such policy. Also, the estimate is for a policy that would reduce the number of monthly rental payments from 36 to 13 for concentrators only. As such, there could be incentives for suppliers to switch oxygen modality to oxygen tanks in order to continue to receive the \$200 monthly payment amounts from Medicare for months 14 through 36. The estimate does not make an adjustment for such potential behavior shift or any other potential behavior changes. Savings are typically presented by the Congressional Budget Office

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(CBO) and the CMS Office of the Actuary (OACT) as estimates of Federal budget savings, that is excluding coinsurance and Part B premium savings to beneficiaries. As footnote 3 indicates, such Federal savings are typically 60 percent of savings without these offsets. Thus, the figures presented in Table 1 are higher than would be presented by CBO or OACT. CBO and OACT also present savings on a fiscal year basis and on a cash rather than incurred basis which would also reduce the estimates presented in Table 1.

The Department of Health and Human Services is committed to ensuring that changes in Medicare payment rules for home oxygen affecting Medicare beneficiaries and suppliers are implemented in a way that fosters access to needed items and services in a cost effective manner. This commitment is reflected in the proposed rule that was published on August 3, 2006 at CMS 1304-P [71 Fed Reg 44082 (August 3, 2006)], that would establish certain policies designed to implement the DRA changes and other changes in a way that safeguard beneficiary access to quality items and new technology and ensure access to oxygen contents and maintenance and servicing of beneficiary owned equipment.

**OIG Recommendation**

Recommends that CMS work with Congress to further reduce the rental period for oxygen equipment.

**CMS Response**

We agree. The Administration's fiscal year 2007 budget contained a proposal to reduce the monthly rental limit for oxygen from 36 to 13 months.

**OIG Recommendation**

Recommends that CMS determine the necessity and frequency of nonroutine maintenance and servicing for concentrators.

**CMS Response**

In the proposed rule published on August 3, 2006, CMS proposed to pay for reasonable and necessary nonroutine service and maintenance for oxygen concentrators. Nonroutine service and maintenance would cover tasks that a trained technician needs to perform such as the concentrator flow rate prescribed by the physician and checking the concentration of oxygen delivered by the unit but would exclude tasks that a beneficiary does such as cleaning the concentrator's external (dust) filter. The proposed rule did not propose a specific frequency schedule though we would be interested to receive comments during the comment period on servicing schedules.

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**OIG Recommendation**

Recommends that CMS determine if a new payment methodology is appropriate for portable oxygen systems.

**CMS Response**

In the proposed rule published on August 3, 2006, CMS proposed to revise payment for refilling portable oxygen tanks after ownership. The rule proposes to raise the payment amount from \$21 to \$55. We are accepting comments on the appropriateness of this payment amount for the refilling of portable contents after ownership.

We conclude by offering thanks to the OIG for this informative report that provides essential information that CMS can use to achieve the goals of the Agency to improve beneficiary access to necessary equipment and services and implement cost effective Medicare payments for home oxygen equipment. Over the past several years we have worked closely with the OIG on issues affecting Medicare payment for oxygen equipment and we look forward to continuing this collaboration on these very important issues.



## A C K N O W L E D G M E N T S

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