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Report to the Ranking Minority Member, Human Resources and Intergovernmental Relations Subcommittee, House Committee on Government Operations

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VA HEALTH CARE

Albuquerque Medical Center Not Recovering Full Costs of Lithotripsy Services

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Health, Education, and
Human Services Division

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The Honorable Steven H. Schiff
Ranking Minority Member
Human Resources and Intergovernmental
Relations Subcommittee
Committee on Government Operations
House of Representatives

Dear Mr. Schiff:

The Department of Veterans Affairs (VA) operates 157 medical centers, including one in Albuquerque, New Mexico. Since 1992, the Albuquerque center has provided lithotripsy to veterans.[1] In January 1993, the University of New Mexico (UNM) Health Sciences Center contracted with the Albuquerque center for the use of the Albuquerque center's equipment and related support services. Under this contract, UNM provides lithotripsy services to nonveterans on a space-available basis.

In January 1994, you expressed concern that the Albuquerque center's contracting practices may have resulted in unfair competition with other lithotripsy providers in the Albuquerque area. At your request, we determined if the Albuquerque center was charging prices that fully recovered the government's cost of providing lithotripsy services to nonveterans. We also assessed what effect, if any, the center's pricing actions may be having on the market for lithotripsy services in the Albuquerque area.

In doing this, we visited all major organizations involved in the Albuquerque lithotripsy market; we interviewed officials and reviewed records. To evaluate the center's lithotripsy prices, we identified all cost components involved in the provision of lithotripsy, such as staffing and supplies, and assessed the methodology and cost data that the center used in determining the charges needed to recover the costs for each component. To assess the market implications of the center's pricing actions, we compared the services available and prices charged by the Albuquerque center and UNM to the services and prices charged by all the other providers. At each provider, we discussed pricing practices, reviewed billing and utilization data, and discussed key factors affecting a consumer's choice of a lithotripsy provider in the Albuquerque market.

[1]A process using shock waves to fracture kidney stones.

Appendix I presents additional details on the scope of our fieldwork and methodologies used.

Results in Brief

The Albuquerque VA medical center's prices for lithotripsy services sold to UNM did not fully recover the center's costs. For example, the center charged $1,469 for each basic lithotripsy procedure provided in 1993. This amount was considerably below costs, which we calculated to be about $3,360. This price difference occurred primarily because the center's rate-setting process spread the recovery of fixed costs, such as equipment depreciation and maintenance, over an unrealistically high annual workload estimate of 882 procedures. Because the center performed significantly fewer procedures, it did not recover about $91,000 of the costs for 48 contract procedures provided to UNM patients in 1993.

In setting a 1994 price, the center lowered its projected annual workload estimate to 500 procedures. This estimate still appears to be unrealistically high, given that the center has performed fewer than 100 procedures during the first half of 1994. In addition, the center extended the period of time for recovery of equipment depreciation costs from 5 years to 9 years. Because these changes had offsetting effects on costs charged per procedure, the 1994 charge for basic lithotripsy is $1,451—slightly less than the 1993 charge. Consequently, the center will apparently fail to recover depreciation costs, totaling thousands of dollars, for contract procedures provided to UNM patients in 1994.

The Albuquerque center's pricing practices for procedures provided to UNM may affect the competitive balance among providers in the Albuquerque lithotripsy market. For example, in late 1993, UNM lowered its charges to insured patients and others by about 30 percent, setting them at a level significantly below market rates. This pricing action may not have been possible if the Albuquerque center had charged UNM for the full costs of the contract procedures provided. Because UNM's charges had previously been consistent with market rates, the reduced prices may likely shift market demand from other area providers to UNM. However, the potential market impact is difficult to estimate because consumers' health care decisions are affected by such additional factors as access and quality of care in addition to price.

Background

VA's 157 medical centers serve about 2.3 million veterans each year at a cost of about $14 billion. The Albuquerque medical center provides a wide

range of inpatient and outpatient care to about 31,000 veterans who reside primarily in New Mexico, the southern part of Colorado, and the western part of Texas. The center spends about $65 million annually.

VA medical centers are authorized to enter into affiliation agreements with nearby medical schools. Through these agreements, VA centers and medical schools may share excess services as a means of improving efficiency of operations and providing patients access to advanced technologies. This may be done through joint acquisition of equipment or contracts that require one party to reimburse the other for the costs of services shared. According to hospital officials, the Albuquerque center currently shares more than 150 medical services, including lithotripsy, with the UNM medical school (see app. II for a detailed discussion of VA's authority to share services with medical schools).

Lithotripsy Is a Specialized Treatment of Kidney Stones

Lithotripsy (in Greek, "stone crusher") is a process that uses shock waves to fracture kidney stones into pieces small enough to pass through a patient's urinary tract. While patients may be able to pass smaller stones on their own, many stones are too large to pass through the ureter, which is a gradually narrowing tube within the urinary tract. Before lithotripsy, surgical procedures were often used to remove such stones, requiring a hospital stay. Lithotripsy, by contrast, is generally performed as an outpatient procedure.

A specialized piece of equipment—an extracorporeal shock-wave lithotripter—produces the shock waves that break up the kidney stone. Medical personnel needed for the procedure may include a technician to operate the lithotripter, a urologist to monitor and supervise the procedure, and an anesthesiologist or anesthesiology certified registered nurse to administer pain medications and monitor the patient's overall health during the procedure.

Five Hospitals Provide Lithotripsy in Albuquerque

Two public and three private hospitals provide lithotripsy in Albuquerque. The Albuquerque VA center provides lithotripsy services to veterans who meet VA's eligibility criteria. Veterans choosing not to use VA services and nonveterans can obtain lithotripsy services through four other hospitals in Albuquerque—the UNM Health Services Center, a state-operated institution, or three private hospitals (Kaseman Presbyterian, St. Joseph's, and Lovelace).

Each of the latter four hospitals contracts for the use of lithotripsy equipment from one of two sources. UNM has a contract to use VA's lithotripter at the Albuquerque center; the three private hospitals use a lithotripter supplied under contract with Southwest Therapies, a for-profit company. VA and Southwest Therapies are the only equipment owners in Albuquerque. Previously, hospitals had to send patients needing lithotripsy to health care providers outside the Albuquerque area.

The two contractual arrangements for lithotripsy equipment use in Albuquerque differ in several key aspects. The UNM/VA arrangement is based on treatment with a lithotripter permanently located at the Albuquerque center. Under this arrangement, VA provides the site, equipment, technician, nurses, anesthesiologist or anesthesiology certified registered nurse, recovery room, and facility support, while UNM provides the urologist and handles the patient billing services.

The arrangement between each of the private hospitals and Southwest Therapies, by contrast, is based on treatment with a mobile lithotripter that is taken to each hospital on a regularly scheduled basis. Southwest Therapies provides the equipment and a technician, while the hospital provides the site, utilities, recovery room, nurses, and other facility support. Under this approach, the urologist and anesthesiologist are private physicians who bill the patient or the patient's insurance separately for their services, as table 1 shows.

Table 1: Comparison of Contract Lithotripsy Services in Albuquerque

	UNM/VA arrangement	Southwest Therapies contract
Service provider	UNM	Private hospitals (Kaseman Presbyterian, St. Joseph's, and Lovelace)
Equipment supplier	VA	Southwest Therapies
Treatment site	VA	Hospital (mobile lithotripter moved from hospital to hospital)
Technician	VA	Southwest Therapies
Urologist	UNM	Private physician
Anesthesiology	VA	Private physician
Other clinical support	VA/UNM	Private hospital

Over one-quarter of all lithotripsy procedures for Albuquerque-area patients (353) in 1993 were performed using the Albuquerque center's

lithotripter (see table 2). The procedures were divided nearly equally between VA and UNM patients.

Table 2: Distribution of Lithotripsy Services Performed for Albuquerque Area Patients (1993)

	Equipment supplier	
Hospital	**VA**	**Southwest Therapies**
Albuquerque VA Medical Center	46[a]	•
UNM	48	•
Kaseman Presbyterian	•	120
St. Joseph's	•	71
Lovelace	•	68
Total	**94[b]**	**259**

[a]Includes 34 veterans and 12 military patients referred from nearby Kirtland Air Force Base who were served under a sharing agreement between the Department of Defense and VA.

[b]The Albuquerque center also treated 61 veterans who were transferred from VA medical centers in surrounding states, bringing the total number of treatments it performed to 155 in 1993.

Albuquerque Center's 1993 Price Did Not Recover Full Cost of Lithotripsy Services

Medical centers are generally required to recover the full variable and fixed costs of contract services provided to patients of affiliated medical schools, according to VA's rate-setting policy. Specifically, the Albuquerque center should include all costs for staffing, equipment usage (including depreciation), supplies, and administration.

Variable costs refer to expenses that are incurred only when a lithotripsy procedure is performed, such as staffing, supplies, and administration. For example, if the center used supplies costing $200 for an individual procedure, this amount should be included in the charge. Thus, if 10 procedures were performed, the total cost would be $2,000; likewise, there would be no cost if the center did not perform any procedures.

By contrast, fixed costs refer to those expenses that the center incurs regardless of the number of procedures performed. These include equipment depreciation and maintenance, as well as building management. For example, depreciation represents the annual expense of using an asset, such as the lithotripter. Generally, annual depreciation costs are determined by dividing the equipment's purchase price (less any salvage value) by the number of years of useful life. By allocating this cost evenly over the number of procedures performed, the center can recover its initial investment.

The Albuquerque center included the appropriate fixed and variable cost components in its rate-setting process. Nonetheless, the center's rates were not sufficient to recover all costs. For example, the center charged $1,469 for a basic lithotripsy procedure provided to each UNM patient receiving contract services in 1993.[2] The center had unrecovered costs of $1,894 for each procedure, consisting of $1,670 in fixed costs and $224 in variable costs, as the following sections show.

Most Fixed Costs Were Not Recovered

The Albuquerque center incurred total annual fixed costs of $360,387 for lithotripsy services in 1993. The center estimated that a charge of $655 would be sufficient to recover fixed costs in its overall charge for each lithotripsy procedure in 1993.[3] Depreciation costs accounted for the majority of the fixed costs, as table 3 shows.

Table 3: Comparison of Total Annual Fixed Costs and Amount Charged Per Procedure

Fixed cost component	Total annual cost	Single lithotripsy procedure charge
Equipment depreciation	$249,645	$408
Equipment maintenance	72,865	204
Building management	37,877	43
Total	**$360,387**	**$655**

Our analysis showed that a charge of $655 per lithotripsy procedure was not sufficient to recover the center's fixed costs. This can be seen by comparing the revenues such a charge would produce against the total fixed costs of $360,387 that Albuquerque incurred. Collecting $655 for each of the 155 lithotripsy procedures conducted in 1993 would recover about $101,525, leaving a shortfall of about $258,862 or $1,670 per procedure.[4]

This shortfall occurred because the Albuquerque center's charges were based on an unrealistically high estimate of the total number of lithotripsy procedures it would perform in 1993. The center assumed that its fixed costs would be spread over 882 procedures during the year; the number of procedures actually performed was 155, less than 20 percent of this estimated workload. When we asked how the estimate of 882 had been

[2]A basic lithotripsy service covers the routine fracturing of the kidney stones, without any related procedures or complicating factors. See appendix IV for other levels of lithotripsy services and the rates the center charges for them.

[3]Appendix III discusses each fixed cost component in more detail.

[4]The center does not charge for all 155 procedures because many are for veterans who do not have to pay. Such an analysis is necessary, however, to determine if patients who should be charged for the service are paying enough to recover their portion of total fixed costs.

developed, officials at the center said they based it on a low estimate of the equipment's annual capacity.

VA policy recommends, but does not require, that workload be developed on the basis of a center's actual usage during the previous year (historical workload) and expected usage under new sharing agreement(s) (potential demand). If this approach had been used by the Albuquerque center, workload would have been estimated at 256 procedures—140 veterans and military beneficiaries served in 1992 and 116 patients targeted in the UNM contract for 1993. Our discussions with center officials indicated that they were unaware of this suggested workload estimating methodology when they developed their 1993 workload estimates.

VA's policy also recognizes that the accuracy of projections will greatly affect the charges assessed for a service that is provided under a sharing agreement with an affiliated medical school. Accordingly, VA recommends that the projected total workload be reviewed quarterly and the charges be adjusted if the revised workload estimate shows the per-procedure cost would change by more than 5 percent.

Officials at the center made no effort to revise the charges for the fixed-cost components during 1993 and said that they were unaware of this provision. During 1993, the number of procedures averaged 39 per quarter, with a low of 34 in the second quarter. That the number of procedures performed would be well below the estimated workload was clear early in 1993. Adjustments should have been made to the charges then but were not.

Full Recovery of Fixed Costs Requires Significantly Higher Lithotripsy Charges

To illustrate the effect of this overstated workload on the center's recovery of contract lithotripsy costs, we examined the center's charge of $1,469 for a basic lithotripsy procedure. The center's basic charge may be divided into two cost categories—$755 for the lithotripter and technician and $714 for facilities support, including anesthesiology services. These categories are consistent with those used by other Albuquerque lithotripsy providers and they facilitate our comparative analysis with these providers. Each category contains variable costs (staffing, supplies, or administration) as well as fixed costs (equipment depreciation and maintenance or building management).

To estimate the amount of unrecovered costs, we compared the center's 1993 charges for these cost categories using the center's workload

estimate of 882 and its actual workload of 155 procedures. To fully recover the Albuquerque center's fixed costs spread over the 155 procedures provided, the center would have needed to charge about $3,360 rather than the $1,469 it actually charged. These charges are summarized in table 4.[5]

Table 4: Comparison of 1993 Charges for Basic Lithotripsy Service Based on Estimated and Actual Procedures

Component	882 procedures (estimated)	155 procedures (actual)	Difference
Lithotripter (including technician)			
Staffing	$143	$143	$0
Equipment depreciation	408	1,611	1,203
Equipment maintenance	204	470	266
Subtotal	**$755**	**$2,224**	**$1,469**
Facilities support (including anesthesiology)			
Staffing	$245	$245	$0
Supplies	194	194	0
Administration	232	456	224[a]
Engineering/building management	43	244	201
Subtotal	**$714**	**$1,139**	**$425**
Total	**$1,469**	**$3,363**	**$1,894**

[a]The administrative costs are variable costs that are primarily determined by applying a fixed percentage to the total costs of the other components. As a result, the center's understatement of the other fixed costs ($1,670), as discussed earlier, also caused a $224 understatement of administrative costs.

Center's 1994 Price Also Unlikely to Recover Lithotripsy Costs

In February 1994, the center revised its lithotripsy charge for UNM patients. This revision included an adjustment in the expected number of procedures as well as changes to key assumptions and cost data. Because these adjustments had an offsetting effect, there was essentially no change in the rate—$1,451 for 1994, compared with $1,469 for 1993. Two key assumptions in the center's calculations indicate that the center may again recover only a small portion of the fixed costs of lithotripsy services provided to UNM patients.

Estimated Workload Appears Unrealistically High

The Albuquerque center computed its 1994 prices on the assumption that it would conduct 500 lithotripsy procedures at the center in 1994. While this represents a 43-percent reduction from the center's estimate of 882 a

[5]Appendix V provides a detailed explanation of the factors that resulted in the center's pricing structure being too low.

year earlier, it still appears unrealistic given the experience of the past several years—140 procedures actually conducted in 1992 and 155 procedures actually conducted in 1993. Center officials were not able to offer support for their projection that the number of procedures would more than double.

The center's estimated workload would have been 223 procedures if it had been developed on the basis of historical workload and potential demand under UNM's sharing agreement. During 1993, the center conducted 107 procedures on veterans and military beneficiaries,[6] and the UNM sharing agreement calls for it to provide 116 procedures in 1994.

The center's charge of $1,451 should fully recover costs if the estimated workload (500 procedures) is performed. However, a higher charge would be needed to cover costs if fewer procedures are performed. As of June 30, 1994—halfway through 1994—the center had performed 97 procedures and we were told that the rate of utilization was not expected to increase significantly. Although adjustments to the charge appear warranted, Albuquerque center officials told us that they have no plans to do so.

Equipment Depreciation Period Appears Excessively Long

Albuquerque center officials computed the 1994 charges on the assumption that the lithotripter's initial acquisition costs would be depreciated over a period of 9 years—4 years longer than the period used to determine the 1993 charges. Center officials told us that this adjustment was made to reflect the lower than anticipated utilization rate during the first 2 years of operations. Extending the recovery period reduces the amount of acquisition costs to be recovered each year and, hence, the amount charged for each procedure performed.

Although the lithotripter's manufacturer has guaranteed the Albuquerque center that service and parts will be available for 10 years, technological advances in medicine are sometimes so rapid as to call into question an assumption that a piece of equipment like a lithotripter will not become technologically obsolete before it reaches the end of its useful life. Using such a long recovery period increases the risk that its costs will not be recovered before the treatment of kidney stones moves on to new equipment or other types of medical procedures. In this regard, Southwest Therapies told us that they are depreciating their lithotripters over a 5-year period.

[6]This consists of 46 Albuquerque center patients and 61 transferred from VA medical centers in surrounding states; it excludes 48 UNM patients who received contract services.

VA policy calls for annual depreciation costs to be calculated using the actual purchase price, less any assigned salvage value, divided by the number of years of expected useful life. In its 1993 depreciation determination, the Albuquerque center assumed a 5-year useful life, with no resulting salvage value. On this basis, the annual depreciation for the lithotripter was $249,645, which represents one-fifth of the lithotripter's purchase price ($1,248,225). Because of the low utilization, the center realized only $120,360 of the almost $500,000 (less than 25 percent) expected during the first 2 years of operation. As a result, the center has yet to realize $1,127,865 in depreciation costs.

VA policy does not provide guidance for developing a change in the estimated useful life of equipment. However, generally accepted accounting principles provide that when a change in estimated useful life is determined to be necessary, the remaining value of the asset is to be divided by the remaining estimated life. In setting the 1994 charges, the center's officials extended their estimate of the lithotripter's useful life from 5 years to 9 years. This gave the center 7 years (1994-2000) to depreciate the remaining acquisition costs rather than the 3 years remaining from their original estimate of a 5-year useful life.

This change should have resulted in an annual depreciation cost of $161,124, or a per-procedure charge of $322 spread over the center's annual workload estimate of 500 procedures, if done in accordance with generally accepted accounting principles. However, the center's officials decided to ignore the first 2 years of accumulated depreciation realized ($120,360) and divided the total acquisition costs of $1,248,225 by the estimated 7 years of remaining useful life. This resulted in an annual depreciation cost of $178,318, or a per-procedure charge of $357 spread over 500 procedures annually. In effect, this approach would fully depreciate the lithotripter's costs in a little over 6 years.

To illustrate the effects of these assumptions on the center's basic lithotripsy charge, we evaluated what would happen if the center had used a more reasonable workload estimate of 223 procedures (computed as suggested by VA's policy) rather than 500 and a depreciation period of 5 years (as used in 1993 pricing structure) rather than 9 years. In all, changing the assumptions in this way would result in a 1994 charge of about $3,271 rather than $1,451. For the lithotripter and technician, the charge would rise from $658 to about $2,168, of which $1,686 represents depreciation costs. For facilities support, the charge would rise from $793

to about $1,103. Appendix VI provides further details on how we developed these estimates.

To assess how the center's assumptions about the lithotripter's useful life affect the center's charges, we estimated annual depreciation costs for periods of 3, 5, and 7 years, using a workload estimate of 223 procedures. For these time periods, the center's charges to recover the remaining acquisition costs ($1,127,865 as of January 1994) range between $723 and $1,686 as table 5 shows.

Table 5: Comparison of Lithotripter Depreciation Costs for Recovery Periods of 3, 5, and 7 Years

Remaining years of useful life	Annual depreciation	Per-procedure depreciation charge (223 per year)
7	$161,124	$ 723
5	$225,573	$1,012
3	$375,955	$1,686

VA's Pricing Actions May Affect the Albuquerque Market

By charging UNM for less than half of its 1993 costs to provide basic lithotripsy procedures, the Albuquerque VA center is not recovering its equipment depreciation costs. More specifically, the center did not charge UNM about $91,000 of the costs of the 48 lithotripsy services provided to UNM patients in 1993. The unrecovered costs averaged nearly $1,900 per procedure.

In theory, UNM could keep the entire savings or it could pass some or all of it on to patients or their insurers. Our analysis of UNM's pricing actions suggests that both situations occurred in 1993. Also, a comparison of rates charged by UNM and other providers suggests that VA could fully recover its costs and remain competitive in the Albuquerque market.

Albuquerque Center's Prices for Lithotripsy Procedures Benefit UNM

As previously discussed, to fully recover its fixed and variable costs, VA should have charged about $3,360 for each of its basic lithotripsy procedures in 1993, rather than the $1,469 per procedure charge. The effect of VA's price to UNM is difficult to determine precisely because there is not always a direct relationship between a service's cost and its price in a complex, competitive market.

A provider may have, in effect, several prices for the same procedure. For example, a hospital may have a different charge for certain types of

insured patients and those paying individually. In addition, an insurer may have a policy of not paying beyond a specified amount, even if the hospital's charge is higher. Also, one insurer may negotiate a rate that is different from the rate the hospital submits to other insurers or to individual patients.

For most of 1993, UNM appears to have greatly benefited by its contract with VA. While UNM paid the Albuquerque VA center only $1,469 for each procedure, UNM's lithotripsy charge to individuals and insurance companies was the highest in the area. UNM kept some or all of the savings in the form of increased revenues. Table 6 shows the breakdown of charges under the most prevalent UNM rate during 1993 and under one of the private hospital/Southwest Therapies packages.[7] While UNM's total charges under the two packages were the highest, the charges were relatively comparable ($9,029 vs. $7,977). However, the breakdown of charges for service components shows major differences, two in particular. First, the center's charge of $755 for the lithotripter and technician was about one-quarter of Southwest Therapies' charge of $2,920. Second, the combined Albuquerque VA's and UNM's charges of $5,750 for facilities support were over twice the $2,617 charge of the private hospital.

Table 6: Comparison of Lithotripsy Charges in Albuquerque (1993)

	Private hospital package				UNM package		
		Provider				Provider	
Service component	Charges	Southwest Therapies	Private hospital	Private physician	Charges	VA	UNM
Lithotripter and technician	$2,920	$2,920	•	•	$ 755	$ 755	•
Urologist	1,800	•	•	$1,800	2,450	•	$2,450
Anesthesiology	640	•	•	640	74	74	•
Facilities support	2,617	•	2,617	•	5,750	640	5,110
Total	**$7,977**	**$2,920**	**$2,617**	**$2,440**	**$9,029**	**$1,469**	**$7,560**

Toward the end of 1993, changes in UNM's pricing for lithotripsy services may have had the effect of passing the savings to UNM patients, insurers, and health maintenance organizations in the form of lower rates. In October 1993, UNM reduced its existing charge for lithotripsy from $9,029 to $6,950, a 23-percent reduction. UNM's Chief Financial Officer said that

[7]To provide some point of comparison between hospitals, we asked the four hospitals to provide what they considered to be a representative bill for a basic lithotripsy procedure in 1993. For the three private hospitals, the bills ranged from $7,977 to $8,963; for UNM, the bill was $9,029.

UNM did so after deciding that its charges for lithotripsy were too high. The reduction came entirely from UNM's portion of facilities support.

At about the same time, UNM also negotiated an even lower lithotripsy rate of $3,550 with a local health maintenance organization. This 49-percent reduction in the $6,950 rate, came from two places: a reduction of $1,180 in the urologist's fee, and a reduction of $2,220 in UNM's facilities support charges. Table 7 shows a breakdown of these two new rates.

Table 7: UNM's New Lithotripsy Price and Its Price Negotiated With Qualmed (October 1993)

	Regular charge			Charge negotiated with QualMed		
		Provider			Provider	
Service Component	**Charges**	**VA**	**UNM**	**Charges**	**VA**	**UNM**
Lithotripter and technician	$755	$755	•	$755	$755	•
Urologist	2,450	•	$2,450	1,270	•	$1,270
Anesthesiology	74	74	•	74	74	•
Facilities support	3,671	640	3,031	1,451	640	811
Total	**$6,950**	**$1,469**	**$5,481**	**$3,550**	**$1,469**	**$2,081**

In commenting on a draft of this report, the Vice President for Health Services, UNM, explained the rationale for the reduction. A large percentage of the discount, she said, is because patients enrolled in this health maintenance organization have their prelithotripsy work-up and postlithotripsy follow-up performed by private urologists, and the UNM urologists and UNM clinical facilities are engaged for only that portion of care directly associated with delivery of lithotripsy treatment. She noted that the remainder of the discount is associated with increased volume, case management, and similar factors that ordinarily provide the basis for offering discounts from usual and customary charges to managed care organizations.

During 1994, UNM discussed the possibility of providing lithotripsy services with another health maintenance organization. This health maintenance organization purchases lithotripsy from one of the private Albuquerque hospitals. The negotiations have included a number of factors, including cost. At this time, however, UNM and the health maintenance organization have postponed further negotiations until our concerns about VA's charges are resolved.

Albuquerque Center's Charges Could Recover Full Costs and Remain Competitive in the Albuquerque Market

The effect of changes in the center's pricing practices on its competitiveness in the market for lithotripsy services in Albuquerque is also difficult to determine precisely. This occurs because the center's price is only one of many variables, including access and re-treatment rates, that may affect decisions about which providers of lithotripsy services to use.

On the basis of price, it appears that the Albuquerque center could comply with VA policy by charging enough to fully recover its costs and still offer a price that is competitive with the services provided by Southwest Therapies and other providers. For example, the center's 1994 price for use of the lithotripter and technician is $658; Southwest Therapies' price is $2,920. If the center charged a price that fully recovered costs within 5 years, the charge for this portion of its services would be about $2,168—still below Southwest Therapies.

Likewise, it appears, on the basis of price, that UNM could pay the Albuquerque center for the full costs and still charge insurers and others a price that is competitive in the Albuquerque market. For example, since October 1993, the regular price for the UNM service has been $6,950; bills from private hospitals indicate that the total price for the service they offer with Southwest Therapies remains between $8,000 and $9,000. If the center charged a price for its lithotripter and technician ($2,168) and facilities support and anesthesiology ($1,103) that fully recovered costs within 5 years, the charge to UNM would need to increase by about $1,820 over the $1,451 now charged. If UNM passed on all of these costs to patients and insurers, its regular charge would increase to about $8,770.

In theory, patients have the flexibility to choose among the various lithotripsy providers. Clearly, patients who pay their own medical bills or who have medical insurance, such as Blue Cross/Blue Shield, have greater latitude in selecting providers. If they belong to a health maintenance organization, patients seeking lithotripsy treatment may have less choice in where they can go to obtain services. Such organizations may have contracts with specific hospitals for such services. For example, HealthPlus, a local organization, contracts for services from Kaseman Presbyterian Hospital. However, some health maintenance organizations, such as QualMed, may contract for lithotripsy services with more than one hospital.

When selecting a lithotripsy provider, patients' choices may be affected by the recommendation of the urologist or other specialist who diagnosed their condition. Medical and administrative staff of the Albuquerque

lithotripsy providers and user organizations indicated that several factors, in addition to cost, could also play a part in patients' decisions, as discussed below.

Access to Care

Scheduling of services could potentially vary substantially between providers. The private hospitals rely on a lithotripter that Southwest Therapies transports from hospital to hospital on a regular schedule. This lithotripter is generally at a hospital only 1 or 2 days a month and, as such, may not always be available when needed. By contrast, the Albuquerque center generally schedules UNM patients for one day each week, but the center also treats these patients on other days, if medically necessary.

Types of Anesthesia

The types of anesthesia vary between providers, generally due to the type of lithotripters used. The private hospitals use general anesthesia, which produces complete unconsciousness, muscular relaxation, and absence of pain sensation during the procedure. These hospitals use the Southwest Therapies' lithotripter and the manufacturer recommends the use of general anesthesia with that equipment.

UNM uses local anesthesia as recommended by the manufacturer of the lithotripter used by the Albuquerque center. Local anesthesia produces muscular relaxation and absence of pain sensation in a limited part of the body; patients maintain consciousness during the procedure. Many health care practitioners regard local anesthesia as somewhat less risky than general anesthesia because it decreases the chance of complications or potentially bad outcomes.

Rates of Re-Treatment

Southwest Therapies and VA have re-treatment rates that vary. Re-treatment rates refer to the frequency which patients must return for a second treatment because the first was not effective. Re-treatment may be needed, for example, if the stone did not fracture sufficiently to pass through the patient's system. According to a VA urologist, the national re-treatment rate is about 20 percent. By comparison, the Albuquerque center reported a re-treatment rate of 15 percent and Southwest Therapies reported a rate of about 5 percent. Both providers require full payment for any re-treatment.

Conclusions

The Albuquerque medical center's charges for lithotripsy services do not recover the full costs of services provided. The main reason for the problem—a flawed price-setting methodology—can be corrected. First, the Albuquerque medical center should develop the lithotripsy charges using a workload estimate that is based on historical workload for veterans and potential demand under sharing agreements. Second, the center should include an equipment depreciation cost that is based on a shorter useful life. Without such actions, it seems likely that the Albuquerque center's pricing practices will continue to fail to recoup costs and may adversely affect the market for lithotripsy services in the Albuquerque area.

Recommendations

The Secretary of Veterans Affairs should direct the Director of the Albuquerque medical center to

- raise the price of lithotripsy services provided to nonveterans to a level that will recover the full fixed and variable costs of the services provided, as VA policy requires; and
- implement a process for periodically reviewing the adequacy of workload projections as VA procedures recommend, and use the results to adjust prices, as appropriate.

Agency Comments and Our Evaluation

We requested written comments on a draft of this report from the Department of Veterans Affairs and the University of New Mexico School of Medicine. The University's Vice President for Health Sciences, in a letter dated October 18, 1994 (see app. VII), provided some clarifying observations that are included in the report where appropriate. However, she declined to offer an opinion on the appropriateness of VA's pricing policies and procedures.

The Secretary of Veterans Affairs provided written comments in an October 31, 1994, letter (see app. VIII) wherein he agreed that the Albuquerque medical center has not been recovering the full costs of its lithotripsy services provided to UNM. He also agreed with our assessment of why this situation occurred—a flawed price-setting methodology that set usage rates significantly higher than the actual rate.

The Secretary, however, disagrees with our recommendations. First, he does not believe that the center's lithotripsy prices should be raised to a level that will recover the full costs of the services provided. Rather, he

prefers to raise the basic lithotripsy price by only $162, a significantly lower amount than is needed to fully recover costs. Second, he prefers to allow the center to review prices on an annual rather than on a quarterly basis as VA policy recommends. In our draft report provided for the Secretary's review, we had recommended that the Albuquerque center adhere to VA's policy. While we agree that annual pricing reviews may be a reasonable alternative, we disagree with the Secretary's view that the center should not be required to fully recover costs.

VA Disagrees That the Albuquerque Medical Center Should Fully Recover Lithotripsy Costs

Depending upon the number of years that VA chose to recover its acquisition costs for the Albuquerque lithotripter, the medical center, in our opinion, would have recovered the full costs of its basic lithotripsy service in 1994, if it had charged between $2,308 and $3,271 per procedure. The lower charge could recover initial equipment acquisition costs over a 9-year period, whereas the higher charge could achieve full recovery in 5 years. Toward this end, we recommended that the Albuquerque center raise its price to achieve full cost recovery and indicated in the report our preference that such recovery be achieved in the shortest time period possible; that is, 5 years rather than 9 years.

In his response, the Secretary stated that the Albuquerque medical center will raise its basic lithotripsy price from $1,451 to $1,613 for fiscal year 1995. He concluded that this is an appropriate price even though he recognizes that it may not recover the full costs of the services provided. He considers it to be consistent with law and VA policy, which states that costing shall be based on

> "a methodology that provides appropriate flexibility to the heads of facilities concerned to establish an appropriate reimbursement rate after taking into account local conditions and needs and the actual costs to the providing facility of the resource involved."

He also indicated that it is consistent with cost recovery practices that other VA medical centers have developed to price contract services involving low-volume, high-technology equipment.

The Secretary concluded that the Albuquerque medical center qualifies to use a low-volume, high-technology equipment pricing practice because its lithotripter has an annual workload of 200 procedures. He explained that this practice involves a different methodology for determining the amount of equipment depreciation costs to be recovered per procedure than the one previously used in 1993 and 1994. In 1993 and 1994, the center used a

methodology that allocated the equipment acquisition costs ($1,248,225) over the number of procedures to be actually performed during the equipment's useful life (9 years). For example, the center expected to recover $178,318 in each of the 9 years and, using a projected workload of 500 procedures in 1994, included a charge of $357 in its basic lithotripsy price ($1,451) for that year.

The 1995 methodology bases the depreciation charge on the number of procedures the equipment is capable of performing during its useful life. In this case, the center estimates that the equipment can perform 4,500 procedures in its life and, as such, decided to recover depreciation costs of $250 per procedure, or 1/4,500 of the equipment acquisition cost ($1,248,225 minus salvage value of $124,823).[8]

We find the Secretary's approval of this methodology to be troublesome for several reasons. In general, it

- exposes the medical center (and taxpayers) to an unreasonably high risk of a large unrecovered equipment acquisition cost;
- ignores local market conditions, which seem to indicate that a faster recovery of equipment cost (and lower risk of unrecovered costs) is possible; and
- ignores the impact that such pricing practices may have on the competitive environment in the Albuquerque lithotripsy market.

Full Recovery of Costs

The Albuquerque medical center's 1995 pricing methodology would result in a slower recovery of equipment acquisition costs than the center's previous pricing practice—a situation that greatly increases the likelihood of potentially large unrecovered costs. The amount recovered will drop from $357 per procedure in 1993 to $250 in 1994. As a result, the center will recover about $50,000 a year compared with $71,000 at current usage rates of about 200 procedures a year.

If usage continues to average 200 procedures a year, the center will recover less than half of the equipment acquisition costs, unless the equipment's useful life greatly exceeds 9 years (the useful life that the center used in setting its 1994 price). Over a 9-year period, the center

[8]An Albuquerque medical center official told us that the center revised the charges for several cost elements in setting its proposed price of $1,613. In addition to the $107 decrease in the equipment depreciation charge, the center also reduced administration costs by $37. These decreases were offset by increases of $218 to the building maintenance charge and $88 to the equipment and building management charge. He said that these increased charges reflect the spreading of fixed costs over an expected workload of 200 procedures a year, compared with the 500 procedures that were used in the 1994 price.

could expect to perform about 1,800 procedures, which would recover $450,000 of the almost $1.2 million acquisition costs.

In contrast, the center would need to operate the equipment for 25 years to fully recover costs at current usage rates of 200 procedures per year. This seems unrealistic in that (1) the manufacturer has guaranteed parts for and maintenance of the lithotripter for only 10 years and (2) advances in medical technology would likely render the equipment obsolete well before the end of 25 years.

It appears that VA will need an almost three-fold increase in utilization (about 500 procedures) if it is to fully recover costs within 9 years under its pricing policy. Given that there were only 353 procedures performed by all lithotripsy providers in Albuquerque during 1993, it seems that the center would have trouble reaching this utilization level even if all demand for lithotripsy services shifted to UNM.

Local Market Conditions

The local market in Albuquerque for lithotripsy services consists of two equipment providers—Southwest Therapies and the Albuquerque medical center. As pointed out in our report, Southwest Therapies charges medical facilities $2,920 per procedure for use of its lithotripter and technician compared with the Albuquerque center's charge of $755 for use of its lithotripter and technician. In 1993, three hospitals in Albuquerque purchased 259 procedures from Southwest Therapies. Thus, it seems that the Albuquerque center could raise its price—to cover a more reasonable depreciation charge—by over $1,300 and still offer UNM a competitive alternative to the market price.

Competitive Environment

The Albuquerque center's below-cost pricing practice may also affect the competitive environment in the Albuquerque lithotripsy market because such a practice greatly increases the disparity between the costs for the use of lithotripter and technician paid by UNM and other competing hospitals. Because the Albuquerque center will continue to charge UNM less than half of the depreciation costs, the center, in effect, is underwriting the costs of lithotripsy services provided to UNM's patients—a pricing practice that appears to foster an unlevel playing field in the Albuquerque lithotripsy market.

The Secretary, in an attachment to his letter, indicated that the center considered UNM's charges to third parties when it determined its prices. In this regard, it suggests that UNM's charges do not equate to receipts, given that UNM serves indigent patients. While there may be some rationale for

reducing the costs of care for UNM's indigent patients, we find it difficult to comprehend why VA would want to subsidize the costs of care provided to UNM's insured patients. Our analysis of UNM's charges indicates that it is passing on the savings to its customers in the form of lower prices and retaining some or all of the savings for its own use in certain situations.

As we pointed out earlier, a local health maintenance organization contracted with UNM to obtain a greatly reduced rate of $3,550 for the entire service, including the attending physician. This $3,550 price represents a 55-percent reduction from the price charged by a private hospital providing lithotripsy in the Albuquerque market. Also, as discussed earlier, another local health maintenance organization has inquired about purchasing UNM's services. Such large price reductions would seem to provide a powerful incentive for other organizations to contract for use of UNM's services.

Concluding Observations

The Secretary noted that he will ask VA's Assistant Secretary for Finance and Information and Resources Management, as well as VA's Under Secretary for Health, to examine VA's policies and assess their continued appropriateness to enable VA to recover its actual cost. We support this action and strongly urge the Assistant Secretary and Under Secretary to revise the center's pricing practice so that it reduces the government's risk of potentially large unrecovered equipment costs, while appropriately taking into account local market conditions so as to maintain a fair and competitive environment for lithotripsy providers in Albuquerque.

VA policy appropriately states that medical centers should be fully reimbursed for the costs of services provided to affiliated medical schools (such as UNM). But in this case, the Secretary concludes that the Albuquerque center's 1995 pricing practice is appropriate for low-volume, high-technology equipment, even though the pricing practice does not fully recover equipment costs. In fact, the center sold a service to UNM for $1,451 in 1994 and will sell it for $1,613 in 1995, when the service actually costs between $2,308 and $3,271. This looks like a bad business deal for VA (and taxpayers) and a good business deal for UNM.

In summary, we believe that VA's pricing policy should adhere to a guiding principle that equipment acquisition costs should be recovered as quickly as market conditions allow. Toward this end, we continue to recommend that the medical center raise its price to a level that will recover the full costs of lithotripsy services within the shortest possible time period. We continue to favor the center's original methodology; that is, spreading the

depreciation costs evenly over a prescribed recovery period and basing the charge on the expected number of procedures to be actually performed during each year, as long as the charges are competitive in the market.

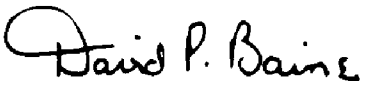
VA Disagrees That Prices Should Be Reviewed on a Quarterly Basis

In our draft report, we recommended that the Albuquerque center implement a process to review the adequacy of workload projections on a quarterly basis, as VA policy recommends. In his response, the Secretary said that annual reviews would be more appropriate. Our recommendation was aimed at bringing the Albuquerque center into compliance with VA's policy because we found quarterly reviews to be a reasonable approach. We do not disagree with the Secretary's views that annual rather than quarterly reviews could meet VA's pricing requirements. Given the Secretary's desire to require annual reviews for the Albuquerque center, we believe that it would be appropriate for the Secretary to update VA's policy statement on workload reviews so that it advises other centers that annual reviews are acceptable. As such, we have modified our recommendation to require the Albuquerque center to implement a process for periodically reviewing the adequacy of workload projections.

Unless you publicly announce its contents earlier, we plan no further distribution of this report for 30 days. At that time, we will send copies to the Secretary of Veterans Affairs and interested congressional committees. We will also make copies available to others upon request.

This report was prepared under the direction of Paul Reynolds, Assistant Director, Federal Health Care Delivery Issues. Please call Mr. Reynolds at (202) 512-7101 or Linda Bade, Senior Evaluator, at (503) 235-8507 if you or your staff have any questions. Susan Poling, Assistant General Counsel, also contributed to this report and can be reached at (202) 512-5881. Other evaluators who made contributions to this report include Dwayne Curry, William Stanco, and Stanley Stenersen.

Sincerely yours,



David P. Baine
Director, Federal Health
Care Delivery Issues

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Abbreviations

UNM	University of New Mexico
VA	Department of Veterans Affairs

Scope and Methodology

Work Conducted at VA's Albuquerque Center

At the Albuquerque center, our work focused on reviewing the center's agreement for the sharing of lithotripsy services and assessing whether the prices charged were fully recovering costs as stipulated in VA policy guidance. To obtain background on the issue, we discussed with Albuquerque center officials the factors that were involved in the decision to acquire lithotripsy equipment and to enter into a VA/UNM sharing agreement. To help ensure that we fully understood VA policy on the pricing of shared services, we also talked with VA headquarters officials from the offices in charge of surgical services and sharing with other institutions.

To help assess the agreement's pricing structure, we held discussions with officials at the Albuquerque center, including the Director, Associate Director, Chief of Quality Management (who has responsibility for oversight of lithotripsy services), and members of the center's fiscal office. These officials explained the processes that were used to develop the center's price for lithotripsy services in 1993 and 1994, including a detailed description of the individual cost components. They also described the methodology used to allocate costs for each component and provided documents supporting the cost data used. We compared the center's pricing processes to VA's policies and guidance and tested the reasonableness of the documentation provided. We also reviewed VA's utilization and billing records for the nonveterans served under this sharing agreement in calendar year 1993 and confirmed these against similar documentation obtained from UNM.

Work Conducted at UNM

Our work at UNM focused on activities relating to its contract with VA for lithotripsy services. We discussed the sharing agreement and UNM's related pricing information with officials in the finance and managed care offices at UNM. We obtained and analyzed utilization, billing, and other records relating to the treatment of UNM patients, as well as UNM's pricing of the services it provided. We also discussed negotiations UNM was conducting with regard to providing lithotripsy services for other medical facilities or health maintenance organizations in the Albuquerque area.

Other Work Conducted in the Albuquerque Area

We also obtained pricing information for the services provided by other hospitals providing lithotripsy in the Albuquerque area—Kaseman Presbyterian, St. Joseph's, and Lovelace. At VA and UNM, we had access to all records, because the providers are government agencies; at these other providers, which are all private institutions, our access to information was

limited to those utilization and pricing documents that they were willing to provide. Specifically, we obtained a sample of actual bills for lithotripsy services that the providers told us were representative of their charges, and we discussed the processes the providers used to develop the charges billed.

At Southwest Therapies, the only other provider of lithotripsy equipment in the Albuquerque area, we obtained and reviewed 1993 billings and utilization data. We compared the service provided, the financial data, and the utilization information we obtained with the information supplied by the Albuquerque center, conducting follow-up discussions as needed.

At the three private hospitals in the Albuquerque area (Kaseman Presbyterian, St. Joseph's, and Lovelace), we interviewed hospital officials and obtained sample billing documents and other related documentation. To the extent possible, we compared the information provided with the information obtained from the Albuquerque center and UNM.

To help gain an understanding of how the Albuquerque center's pricing actions might be affecting the market for lithotripsy services in the Albuquerque area, we spoke with officials at the three hospitals and with an official of a local health maintenance organization (QualMed) about their desire to either change their current service provider or expand their own capabilities in the provision of these services.

We also discussed the provision of anesthesia services connected with lithotripsy (as it is provided at Kaseman Presbyterian Hospital) with the Anesthesiology Medical Consultant's Group in Albuquerque, New Mexico. We obtained data related to how anesthesiologists develop their per-procedure rates and a range within which they might bill for such services.

Our review was performed from January 1994 to August 1994 in accordance with generally accepted government auditing standards.

Overview of VA's Authority to Share Services With Affiliated Medical Schools

Title 38, section 8153 of the United States Code provides VA with contracting authority to share specialized medical resources with non-VA health facilities. These contracts are generally called sharing agreements (38 U.S.C. section 8153 (Supp. IV 1992), as amended by P.L. 103-210, section 3(c), Dec. 20, 1993). Under the statute, sharing agreements may not result in "diminution of services to veterans" (38 U.S.C. section 8151 (Supp. IV 1992), as amended by P.L. 103-210, section 3(a), Dec. 20, 1993).

Specialized medical resources are defined to include equipment, space, or personnel, which are either unique in the medical community or are subject to maximum utilization only through mutual use because of cost, limited availability, or unusual nature (38 U.S.C. section 8152(2)(Supp. 1992) as amended by P.L. 103-210, section 3(b), Dec. 20, 1993). VA can use section 8153, for example, to share equipment it owns with outside providers or to gain access to equipment owned by others.

Sharing agreements may be used to secure specialized medical resources that otherwise might not be feasibly available or to effectively utilize certain other medical resources when the Secretary determines it is in the best interest of the prevailing standards of the Department medical care program. However, under section 8153, the Secretary may only enter into sharing agreements if the contract will obviate the need for a similar resource to be provided in a VA facility or the VA resources that are the subject of the agreement and that have been justified on the basis of veterans' care are not used to their maximum effective capacity (which is the case with the lithotripter at the Albuquerque center).

The law is not very specific with regard to how VA is to price the medical resources that it provides to medical schools, health care facilities, and research centers. The law states that reimbursement must be based on a methodology that provides appropriate flexibility to the heads of VA facilities after taking into account local conditions and needs and the actual costs to the providing facility of the resource involved.

The guidance (VA Manual, G-13, M-1, Part I, p. 3, Mar. 11, 1986) in effect when the VA Albuquerque entered into its sharing agreement with the University of New Mexico Medical Center for lithotripter services generally required that charges cover the full cost of services rendered; supplies used, including normal depreciation; and amortization of equipment, according to life expectancy. In commenting on a draft of this report, the Secretary of Veterans Affairs approved the use of an alternative pricing practice for low-volume, high-technology equipment contained in

VA Manual G-12, M-1, Part 1, appendix B. This pricing practice may not fully recover costs. (see app. VIII.)

The current VA manual states that when a proposed sharing agreement involves the contractor's use of federally owned property, such as medical space or medical equipment (which is the case with the lithotripter at Albuquerque), VA should obtain a fair market value in accordance with comparable commercial practices. The negotiated cost need not be limited to the recovery of costs and may produce net revenue to the government (M-1, Part 1, chapter 34, July 14, 1993). The guidance also references OMB Circular A-25 (Sept. 23, 1959), which includes in its definition of full cost an appropriate share of depreciation of equipment; this circular provides a basis upon which user charges are to be set.

Another provision of Title 38 permits VA to enter into agreements with institutions for the joint acquisition of medical equipment (38 U.S.C. section 8157 (Supp. IV 1992)). Under this provision, the Secretary may not pay more than one-half of the purchase price, the equipment must be jointly titled to the United States and the institution, and the Secretary and the institution must have arranged by contract under 38 U.S.C. section 8153 for the exchange or use of the equipment before the equipment is acquired. Although this section does not apply to the Albuquerque acquisition, other VA medical centers have jointly purchased lithotripters in partnership with affiliated medical schools.

Overview of Albuquerque Center's Fixed Costs for Lithotripsy Services

Medical centers are to recover the full cost of contract services provided to patients of affiliated medical schools, according to VA's rate-setting policy. Specifically, the Albuquerque center must charge, at least, all fixed costs for equipment and building usage. The Albuquerque center incurred an annual fixed cost of $360,387 to provide lithotripsy services to veterans and nonveterans in 1993, as table III.1 shows. This appendix explains how the estimates for each of these cost components were developed.

Table III.1: Estimated 1993 Costs for Providing Basic Lithotripsy Services

Component	Annualized amount
Equipment depreciation	$249,645
Equipment maintenance and repair	72,865
Engineering and building management	37,877
Total	**$360,387**

Equipment Depreciation

Depreciation represents the expense of using an asset such as the lithotripter. VA policy calls for annual depreciation costs to be calculated using the actual purchase price, less any assigned salvage value, divided by the number of years of expected useful life. In its initial depreciation determination, the Albuquerque center assumed a 5-year useful life, with no resulting salvage value. On this basis, the annual depreciation for the lithotripter was $249,645 which represents one-fifth of the lithotripter's purchase price ($1,248,225).

Equipment Maintenance and Repair

This cost component covers the contract with the manufacturer for service and repair of the lithotripter and associated component parts. The cost for this category ($72,865) was the actual cost of the maintenance and repair contract for 1993.

Engineering and Building Management

This component covers such costs as utilities and general maintenance for the area where the lithotripter is located. VA policy calls for establishing the general cost within this category by determining what percentage of the facility's total square footage is devoted to the medical procedure and applying this percentage to the facility's total engineering and building management costs. Our 1993 estimate uses the amount ($37,877) developed by the center.

Albuquerque Center's Levels of Lithotripsy Services and Related Prices

Our analysis was based mainly on the center's basic level of lithotripsy services. However, the center has four levels of services, each one involving some differences in terms of the amount of time, equipment, material, supplies, and staff resources involved in conducting the procedures. The four are as follows:

- Basic procedure: encompasses the fracturing of kidney stones by the lithotripter without the need for additional procedures or instrumentation.
- Cystocopsy: involves the use of special instruments and equipment to perform related urology procedures as well as lithotripsy.
- Uteral catheterization: involves the placement of a uteral catheter to assist in the visualization of some types of kidney stones under X ray. Lithotripsy is performed after the placement of this catheter.
- Stent: the most time consuming of the four levels, this involves placing a tube in the patient's ureter, usually after lithotripsy, in order to allow the kidney to drain properly and to relieve pain.

In addition to these four levels of services, the Albuquerque center also provided the option of conducting the procedure at any of the four levels using VA's staff urologist or a certified[9] urologist from the UNM Health Services Center. This means that each level of service has two rates—one including the cost of the VA urologist, the other not including it.

Table IV.1 shows the resulting eight rates for the four levels of service as they were specified in the original sharing agreement for 1993. The rates range from $1,469 for a basic procedure without a VA-supplied urologist to $2,216 for a procedure using a stent and with a VA urologist performing the procedure.

[9]Certified to operate the extracorporeal shock-wave lithotripter owned by the Albuquerque VA Medical Center. Such physicians also are required to be approved to practice in the VA hospital.

Table IV.1: Rates for Lithotripsy and Related Services (1993)

Level of lithotripsy service	Rate
Basic procedure	
Without VA urologist	$1,469
With VA urologist	$1,752
Cystoscopy	
Without VA urologist	$1,640
With VA urologist	$2,008
Uteral catheterization	
Without VA urologist	$1,654
With VA urologist	$2,022
Stent	
Without VA urologist	$1,796
With VA urologist	$2,216

Under the contractual agreement, these services include equipment, space, materials, ancillary services (such as X ray), and the following staff costs: physician assistant, registered nurse, anesthesiologist, technician, and secretarial services. The rates include depreciation and maintenance, which are discussed in more detail in appendix III.

Analysis of Albuquerque Center's 1993 Basic Lithotripsy Price

To fully recover its costs for a basic lithotripsy procedure in 1993, the Albuquerque center would have needed to charge about $3,360 rather than the $1,469 it actually charged. The charge of $3,360 per procedure would have been consistent with VA policy, which requires that the price for services sold under sharing agreements should recover the full cost of services rendered and supplies used, including the depreciation cost of equipment. This price is to include the following cost components: staffing, supplies, equipment (depreciation and maintenance), administration, and engineering and building management.

This appendix compares the center's actual costs for the major cost components of its basic lithotripsy service to the amounts the center charged for each component. The Albuquerque center's $1,469 charge may be separated into two parts:

- a $755 charge for operation of the lithotripter, including the services of a technician, and
- a $714 charge for facilities support, including anesthesiology services.

The $1,469 charge would have recovered the center's costs if the center had performed 882 procedures or more in 1993. However, the center only performed 155 procedures and, as a result, did not recover $258,862 of the $360,387 in fixed costs spent to provide lithotripsy services. As the following sections show, most of the shortfall relates to the center's charge for operating the lithotripter and only a small portion was attributable to the center's charge for facilities support.

Lithotripter and Technician

We estimate that the Albuquerque center should have charged $2,224 for its lithotripter and technician, rather than the $755 charged. Most of this difference relates to the allocation of depreciation costs over 882 procedures rather than 155 procedures. Table V.1 separates the difference by the specific cost components included in the charge.

Table V.1: 1993 Charge for Lithotripter and Technician, Based on 882 Procedures (Albuquerque Center) and 155 Procedures (GAO)

	1993 charge for lithotripter and technician		
Component	Price as set by Albuquerque center	Price as determined by GAO	Difference
Staffing	$143	$143	$0
Equipment depreciation	408	1,611	1,203
Equipment maintenance	204	470	266
Total	**$755**	**$2,224**	**$1,469**

Staffing

VA's calculations for staffing were not affected by its overestimation of the number of procedures that would be performed in 1993. This is because staffing costs are assessed on a procedure-by-procedure basis, not on estimated workload.

VA policy calls for staffing costs to include professional administration and quality control, clerical and technical support personnel, and fringe benefit and bonus amounts associated with these categories. Salary, fringe, and bonus costs were computed based on average salaries for the classes of staff involved in the procedure, not on salaries for the individual staff actually participating in a particular procedure. Although this approach is likely to produce some distortions in individual cases,[10] it would be difficult for the center to account for each variation that could exist. As a result, we found the center's determination of costs to be consistent with VA's policy.

Equipment Depreciation

For 1993, the center's fiscal staff used $1.8 million as the purchase amount for the lithotripter, adopted a period of 5 years as the lithotripter's useful life, assumed it would have no salvage value at the end of the 5-year period, and divided the resulting depreciation amount of $360,000 by 882 estimated procedures to arrive at a per-procedure equipment depreciation charge of $408.

This amount was incorrect for two reasons. First, the computation was based on the amount that had been obligated for the lithotripter rather than its actual price. The obligated amount was $1.8 million, but the

[10]For example, staffing costs for anesthesiology are billed at the average cost for a certified registered nurse anesthesiologist. In some cases, however, anesthesiologist physicians serve as staff for the procedure. In such an instance, the rate charged would understate the center's staffing cost, because an anesthesiologist's salary is higher than the certified nurse's.

purchase price was $1,248,225—a difference of $551,775. This created an overstatement of $110,355 in the annual depreciation expense allocated to the 882 lithotripsy procedures. The second reason was the use of the unrealistic workload, and it had the opposite effect—it understated the per-procedure cost. Because the center performed only 155 total procedures instead of the estimated 882, each procedure understated the depreciation amount by more than $1,900. Adjusting this amount to account for the understatement caused by using the incorrect price, the difference between the center's actual depreciation charge and our recalculated amount was $1,203.

A related consideration is whether a salvage value could have been assigned to the equipment, thereby decreasing the depreciation amount. A representative of the company manufacturing the lithotripter told us that the maximum salvage value after a 10-year period would be 20 percent of the purchase price or about $250,000. The representative said his company had guaranteed service and repair for 10 years from the date of purchase—5 years beyond the useful life assigned for depreciation purposes. After that time, the company did not guarantee that parts would be available. The representative said medical technology advances would also affect the equipment's resale value during the 10-year period. Because of these uncertainties, we accepted the Albuquerque center's judgment that no salvage value should be included in the depreciation cost estimate.

Equipment Maintenance and Repair

The same two factors that caused errors in the equipment depreciation charge also caused errors in the charge for equipment maintenance and repair. When the charge for this component was developed, the actual contract price had not been determined. Thus, the charge was based on an amount equal to 10 percent of the $1.8 million that had been obligated to buy the lithotripter. This amount overstated the actual amount of the maintenance contract by $107,135. However, as with the charge for depreciation, the overstatement is dwarfed by the understatement that resulted from dividing the total by 882 expected procedures. If the charge is recomputed using the actual price of the contract and the actual number of procedures performed, the per-procedure amount would be $470, which is $266 more than the center actually charged.

Facilities Support

To fully recover costs, we estimate that the Albuquerque center would have needed to charge $1,139 per procedure for facilities support and anesthesiology, rather than the $714 charged. This difference relates to the

insufficient allocation of costs for administration and building management over 882 procedures instead of 155 procedures. Table V.2 separates the difference by specific cost components included in the charge.

Table V.2: 1993 Charge for Facilities Support, Based on 882 Procedures (Albuquerque Center) and 155 Procedures (GAO)

	1993 charge for facilities support		
Component	Price as set by Albuquerque center	Price as determined by GAO	Difference
Staffing	$245	$245	$0
Supplies	194	194	0
Administration	232	456	224
Engineering/ building management	43	244	201
Total	**$714**	**$1,139**	**$425**

Staffing and Supplies

Because staffing and supply costs are calculated on a per-procedure basis, they are unaffected by the center's overestimate of the number of procedures that would be performed in 1993. As previously discussed for the lithotripter and technician, we found the center's determination of staffing costs to be consistent with VA's policy.

VA guidance calls for the cost of supplies to be based on the actual acquisition cost. As with staffing costs, we made no adjustments to the center's determination of supply costs.

Administration

This component covers the Albuquerque center's indirect administrative staff and resource costs related to the providing of lithotripsy procedures. It also reflects two other factors related to the center—building depreciation and interest on net capital investment—as well as administrative costs for VA's central office in Washington, D.C. The administrative portion is the prorated share of headquarters administrative costs assigned to the Albuquerque center, which is 1 of 157 VA medical centers throughout the nation.

The center's indirect administrative staff and resource costs are based on determining what percentage of direct care (as measured by full-time-equivalent positions) that lithotripsy procedures represent relative to all types of direct care provided by the center. This percentage

is then applied to the center's total administrative costs to arrive at the portion to be allocated to lithotripsy procedures. VA policy guidance does not stipulate how the calculation is to be made. We reviewed the center's methods and found no reason to adjust their results.

Under VA policy, the charge to be assessed for central office administration, Albuquerque center building depreciation, and investment interest is a designated percentage of the total costs for all other components. We reviewed the center's methods and found no reason to adjust their results.

We found the cost for this component to be understated, because the Albuquerque center had underestimated the total cost for the other components. Our computations of the other components produced a total of $2,966, which was $1,670 more than the amount the Albuquerque center had used. Applying the designated percentage to the higher total raised the amount for this component to $456, an increase of $224.

Engineering and Building Management

We found that the per-procedure charge for this component was understated. Although VA had allocated the appropriate percentage of engineering and building maintenance costs to the lithotripsy function, these costs had again been divided by the estimate of 882 procedures, resulting in a per-procedure charge of $43. Dividing the costs by the 155 procedures actually performed yields a cost of $244—a net increase of $201.

Analysis of Albuquerque Center's 1994 Basic Lithotripsy Price

The Albuquerque center's 1994 charge to UNM for basic lithotripsy services is $1,451. Two key assumptions in the center's calculations make it unlikely that this rate will be sufficient for VA to recover the costs of providing lithotripsy services to UNM patients.

- The first assumption is the estimate of the number of procedures that will be performed. The center estimated the number as 500. As of June 30, 1994, however—halfway through the year—the center had performed 97 procedures.
- The second assumption is the length of time for recovering the lithotripter's cost. The center used an approach that had the effect of extending the total period for recovering the cost to 9 years—4 years longer than the period used for the 1993 estimate.

This appendix compares the center's estimated charges for the major cost components of its basic lithotripsy service to the amounts that would be chargeable, using different assumptions regarding workload and investment recovery period. Our assumed workload was 223 procedures rather than the 500 assumed by the Albuquerque center.[11] The investment recovery period we used was the same period the center had used in its 1993 price determination.

The Albuquerque center's 1994 charge may be separated into two parts:

- a $658 charge for operating the lithotripter, and
- a $793 charge for facilities support.

These charges will recover the center's fixed and variable costs if 500 procedures or more are performed and the equipment is operated for 9 years or more. The center, however, will experience a significant shortfall if it performs less than half of the expected procedures, a situation that appears likely given the workload generated during the first half of 1994. As the following sections show, most of the shortfall will be related to the center's charge for operating the lithotripter and only a small portion will be attributable to its facilities support charge.

[11]We developed our assumption by following the approach suggested in VA's policy guidance—adding (1) the actual usage by VA patients during the previous year and (2) the expected usage under the sharing agreement. In 1993, the center performed 107 procedures for VA patients, and in 1994, its sharing agreement set a goal of providing 116 procedures.

Lithotripter and Technician

Under the assumptions we used, the Albuquerque center's charge for its lithotripter and technician would be $2,168 rather than the $658 charged. Most of the difference relates to the depreciation charge. Table VI.1 separates the differences by the specific cost components included in the charge.

Table VI.1: 1994 Rate for Lithotripter and Technician, Based on 500 Procedures (Albuquerque Center) and 223 Procedures (GAO)

	1994 price for basic lithotripsy procedure		
Component	Price as set by Albuquerque center	Price as determined by GAO	Difference
Staffing	$155	$155	$0
Equipment depreciation	357	1,686	1,329
Equipment maintenance	146	327	181
Total	**$658**	**$2,168**	**$1,510**

Staffing

VA's calculations for staffing were not affected by its estimate of the number of procedures that would be performed in 1994. This is because staffing costs are assessed on a procedure-by-procedure basis, not on estimated workload.

Equipment Depreciation

This component resulted in the largest difference between the center's calculation and ours—$357 as set by the center, and $1,686 as we calculated it, a difference of $1,329. Two main factors contributed. One was the methodology the center used for changing the lithotripter's useful life. The other was the estimated number of lithotripsy procedures over which the 1994 depreciation amount could be spread.

In determining the annual amount of depreciation for the pricing computation, the center made two adjustments to its 1993 procedures.[12] First, it used the acquisition price of the equipment rather than the amount that had been obligated to purchase the equipment. As we pointed out in appendix V, this was the more appropriate figure to use as a starting point. Second, it changed the lithotripter's useful life from 5 years to 9 years. VA policy does not provide guidance for developing a change in the estimated useful life of equipment, but general accounting procedure does. The

[12]In making the calculation, the center followed its 1993 practice of not assigning any salvage value to the lithotripter. As we pointed out in appendix V, the lithotripter may have some salvage value. However, for consistency's sake, we took the center's approach and did not assign salvage value in making our calculations.

method to be used is as follows: when a change in estimated useful life is determined to be necessary, the remaining value of the asset, less any salvage value assigned, is to be divided by the remaining estimated life.

The center did not follow this approach. Instead, it based its calculation on the full value of the asset (its original acquisition cost) and divided by the remaining 7 years of the 9-year useful life. In so doing, the center determined that an annual depreciation cost of $178,318 over 7 years would recover the initial acquisition costs of $1,248,225. Given the center's estimated annual workload of 500 procedures, officials determined that a charge of $357 would be sufficient to realize the annual depreciation cost.

The effect of this approach was to overstate the portion of the lithotripter's cost to be depreciated each year, as well as the resulting charge per procedure. Because the center's lithotripter had been operational for 2 years, and 295 procedures had been performed since that date, the center should have recognized an accumulated depreciation of $120,360, based on the $408 depreciation amount per procedure in the original rate (see table V.1). By adjusting the initial acquisition costs to reflect this accumulated depreciation, the remaining value of the lithotripter would be $1,127,865, which represents the amount to be depreciated over the remaining useful life. This approach would have yielded a depreciation charge of $322 per procedure over the center's estimated workload of 500 procedures.

By ignoring the accumulated depreciation, the center would recover more than the cost of the asset over its useful life. For example, if 500 procedures are performed for each of the next 7 years, the center would have a total recognized depreciation of $120,360 more than the $1,248,225 purchase price.

Our recalculation of the amount to be depreciated is based on a 5-year useful life rather than a 9-year life. We used this shorter period in order to remain more consistent with the center's previous methodology for determining costs and because we regard 5 years as a more appropriate period for recovering costs on equipment that can quickly become technologically obsolete even though it is still operable. Since 2 years of the period have gone by, 3 years remain over which to depreciate the equipment. We adjusted the purchase price by the $120,360 in accumulated depreciation and divided the remaining balance by the remaining 3 years to obtain an annual amount of depreciation of $375,955.

This compares with the center's computation of $178,318 in depreciation to be recovered during 1994.

The other adjustment we made was to divide our annual depreciation amount by an estimate of 223 procedures to be performed during the year. The center had divided its annual depreciation amount by its estimate of 500 procedures. The combination of all of these adjustments produced our per-procedure recalculation amount of $1,686.

Equipment Maintenance and Repair

This cost component covers the contract with the manufacturer for service and repair of the lithotripter and associated component parts. The center used the actual annual contract cost, as did we. The difference between the center's price and our recalculation is again the number of procedures over which the cost is spread—the center used 500, and we used 223. This results in a difference of $181 per procedure.

Facilities Support

Under the assumptions we used, the Albuquerque center's charge for facilities support and anesthesiology would be $1,103 rather than the $793 charged. This difference relates solely to the allocation of costs for administration and engineering and building management, as table VI.2 shows.

Table VI.2: 1994 Rate for Facilities Support, Based on 500 Procedures (Albuquerque Center) and 223 Procedures (GAO)

	1994 price for basic lithotripsy procedure		
Component	Price as set by Albuquerque center	Price as determined by GAO	Difference
Staffing	$273	$273	$0
Supplies	215	215	0
Administration	229	445	216
Engineering/ building management	76	170	94
Total	**$793**	**$1,103**	**$310**

Staffing and Supplies

Because staffing and supply costs are calculated on a per-procedure basis, they are unaffected by the different assumptions regarding workload and investment recovery period.

Administration

As appendix V explained, this component is composed of several types of costs besides the administrative costs of VA's headquarters in Washington, D.C., and is based on a percentage computed at the local level and applied to all other costs. We found the cost for this component to be understated, because the problems previously discussed for other cost components had produced a total for the other costs that was lower than it should have been. Applying the designated percentage to the higher total raised the amount for this component to $445, an increase of $216.

Engineering and Building Management

This cost component allocates a prescribed percentage of engineering and building maintenance costs to the lithotripsy services. The difference between the center's charge and our recalculation is the number of procedures over which the cost is spread—the center used 500, and we used 223. This results in a difference of $94 per procedure.

Comments From the University of New Mexico Health Sciences Center

The University of New Mexico
Health Sciences Center

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October 18, 1994

VIA FACSIMILE AND MAIL

Mr. David P. Baine
Director, Federal Health Care Delivery Issues
United States General Accounting Office
NGB/Federal Health Care Delivery Issues
441 G Street, N.W.
Washington, D.C. 20548

Ref.: Draft Report: VA Health Care: Albuquerque Medical Center Not Recovering Full Costs of Lithotripsy Services

Dear Mr. Baine:

We appreciate the General Accounting Office ("GAO") providing the University of New Mexico ("UNM") an opportunity to review and comment on the above-referenced draft report. The UNM Health Sciences Center has a close working relationship with the Veterans Affairs Medical Center ("VAMC") in Albuquerque through a variety of joint educational, research and clinical programs. The sharing of lithotripsy equipment is only one of many ways in which VAMC and the UNM Health Sciences Center cooperate to provide health care services and training opportunities to residents of the State of New Mexico.

We do not believe it is appropriate for UNM to evaluate the pricing structure or methodology of VAMC services, as that is an activity which is solely within the purview of VAMC. However, we do have a few comments on the report, as follows:

1. The report does not point out the differences between the VAMC lithotripter unit and the unit operated by Southwest Therapies. The majority of patients treated by the VAMC lithotripter do not require general anesthesia, which may yield reduced cost and increased safety and convenience to patients.

Mr. David P. Baine
October 18, 1994
Page Two

2. The UNM charge for lithotripsy was reduced in 1993 from $9,029 to $6,950. This represents a 23 percent reduction, not a 30 percent reduction as noted on page 20 of the draft report.

3. The reduced charge of $3,550 negotiated with a local health maintenance organization (noted on page 21 of the draft report) should be compared to the reduced usual and customary charge of $6,950, not the previous charge of $9,029, and thus represents a 49 percent reduction from usual and customary charges, not a 65 percent reduction from usual and customary charges. The rationale for a large portion of the reduction is that the patients enrolled in this HMO have their pre-lithotripsy work-up and post-lithotripsy follow-up performed by private urologists, and the UNM urologists and UNM clinical facilities are engaged for only that portion of care directly associated with delivery of lithotripsy treatment. The remainder of the discount is associated with increased volume, case management, and similar factors which ordinarily provide the basis for offering discounts from usual and customary charges to managed care organizations.

We hope that our comments can be incorporated in the final report before it is issued. Again, we appreciate the opportunity to review the draft report. We believe that the VAMC has made an important contribution to the quality and accessibility of lithotripsy services for New Mexico residents by making the VAMC lithotripter available to UNM patients who are not veterans.

Sincerely,

Jane E. Henney, M.D.
Vice President for Health Sciences

JEH:ssw

cc: Mr. R. Michael Harwell, Director, Albuquerque VAMC
Paul Roth, M.D., Interim Dean, School of Medicine

Comments From the Department of Veterans Affairs

THE SECRETARY OF VETERANS AFFAIRS
WASHINGTON

OCT 31 1994

Mr. David P. Baine
Director, Federal Health Care
Delivery Issues
U. S. General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Baine:

This is in response to your draft report, **VA HEALTH CARE: Albuquerque Medical Center Not Recovering Full Costs of Lithotripsy Services** (GAO/HEHS-94-228). I agree with GAO's overall conclusion that the Albuquerque, New Mexico, Department of Veterans Affairs Medical Center (VAMC) has not been recovering the full costs of its lithotripsy services provided to the University of New Mexico (UNM). As the report correctly states, the VAMC based its charge per procedure on projected utilization rates that were significantly higher than the actual rates. Recognizing a more realistic workload, the VAMC has recalculated its costs using the approved methodology for low-volume, high-tech equipment. This methodology recognizes that pricing for services of such equipment may not recover its full fixed and variable costs. The VAMC is revising its lithotripsy services charges to the UNM accordingly.

The guiding principle regarding the prices that VA facilities charge non-VA sharing partners for the use of specialized medical resources is established in 38 U.S.C. Section 8153 and in Veterans Health Administration (VHA) policy. Costing, by law and by policy, shall be based on "a methodology that provides appropriate flexibility to the heads of facilities concerned to establish an appropriate reimbursement rate after taking into account local conditions and needs and the actual costs to the providing facility of the resource involved." VA's past experience with low-volume, high technology equipment resulted in the development of a costing methodology that may be used in calculating appropriate charges in such cases. This alternate costing methodology used by VAMC Albuquerque in its recalculation is further explained in the enclosure.

2.

Mr. David P. Baine

At the time the VAMC calculated the original pricing structure for the lithotripsy services contract with the UNM, the technology was new. No historical data were available to identify a reasonable life expectancy for the equipment, and the patient demand for this procedure was unknown. The medical center is now able to use actual workload information, and couple it with more realistic life expectancy projections to calculate a more appropriate pricing structure for the lithotripsy services contract with UNM.

Although the medical center established its charge per procedure within the guidelines provided in law and in VA policy, GAO raises some points that I believe VA should address. I will ask the Assistant Secretary for Finance and Information and Resources Management and the Under Secretary for Health to examine VA's policies and assess their continued appropriateness to enable VHA to recover its actual cost.

The VAMC also will continue to monitor their reimbursement rates and analyze the adequacy of workload projections. However, we believe annual analysis is more appropriate than the GAO recommended quarterly analysis, since contracts and contract option years are established and executed on a per annum basis.

The enclosure details the actions VHA is taking to implement your recommendations. Thank you for the opportunity to comment on this report.

Sincerely yours,

Jesse Brown

Jesse Brown

Enclosure
JB/vz

Enclosure

DEPARTMENT OF VETERANS AFFAIRS COMMENTS
TO GAO DRAFT REPORT
VA HEALTH CARE: Albuquerque Medical Center Not Recovering Full Costs of Lithotripsy Services
(GAO/HEHS-94-228)

GAO recommends that I direct the Director of the Albuquerque Medical Center to

-- raise the price of lithotripsy services provided to non-veterans to a level that will recover the full fixed and variable costs of the services provided, as VA policy requires, and

Concur - The medical center has recognized a lower projected annual workload of 200 procedures. Accordingly, it has recalculated the charges for lithotripsy services using the low volume, high-tech equipment approved costing methodology contained in G-12, M-1, Part I, Appendix B. The cost per procedure based on this methodology is $1,613. This methodology assumes that pricing the services for such equipment may not recover its full fixed and variable costs. The policy states that, in general, a piece of equipment is designed to perform a certain number of tests or procedures during its useful life. In a few isolated cases, where volume is unusually low for any given period, then equipment depreciation for a procedure or test is computed based on the following formula:

DPT = Depreciation Per Test
AC = Acquisition Cost
TTL = Total Test Life (per equipment manufacturer, the number of tests/procedures during the life)
SV = Salvage Value

$$DPT = \frac{AC-SV}{TTL}$$

Recognizing that the workload may remain at extremely low volumes, the medical center has reconstructed the costing model using this methodology. We believe this methodology for pricing lithotripsy services for Fiscal Year 1995 is more appropriate than the methodology suggested by GAO.

The medical center will continue to consider its higher reimbursement rates, "taking into account local conditions and needs," and UNM charges to third parties. However, we do not agree that "charges" made by UNM to patients equate to receipts, given indigent patients served by UNM.

-- **Implement a process for reviewing the adequacy of workload projections on a quarterly basis, as VA procedures recommend, and use the results to adjust prices as appropriate.**

Concur with modification - An annual analysis seems more logical since contracts (and contract option years) are established and executed on a per annum basis. Based on the findings of such an analysis, VA facilities have a full range of contracting options available to ensure that costs are fully recovered.

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