DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Memorandum

Date SEP 22 1999

From June Gibbs Brown
Inspector General

Subject Review of Costs Claimed by Homebound Medical Care, Inc. (A-04-98-01184)

To Nancy-Ann Min DeParle
Administrator
Health Care Financing Administration

Attached are two copies of our final report entitled *Review of Costs Claimed by Homebound Medical Care, Inc.* The objective of our review was to determine whether the home health care services claimed by Homebound Medical Care, Inc. (Homebound) in Memphis, Tennessee met Medicare reimbursement guidelines.

In each of Homebound's Fiscal Years (FY) 1995 and 1996, we selected 100 claims for review. We found 25 claims for FY 1995 and 33 claims for FY 1996 involved services that did not meet Medicare reimbursement requirements.

For FY 1995, we found 226 of the 1,772 home health services paid should not have been reimbursed. The unallowable services included 44 services that were not reasonable or medically necessary, 144 services that lacked proper physician authorization, and 38 services that were not properly documented.

For FY 1996, we found 303 of the 1,819 home health services paid should not have been reimbursed. The unallowable services included 84 services that were not reasonable or medically necessary, 213 services that lacked proper physician authorization, and 6 services that were not properly documented.

Based on our review, we estimate at least $627,292 of the $10 million claimed by Homebound in FY 1995 did not meet the reimbursement requirements. Using the 90 percent confidence interval, we believe the overpayment was between $627,292 and $1,848,060.

We also estimate at least $1,233,468 of the $11.6 million claimed by Homebound in FY 1996 did not meet the reimbursement requirements. Using the 90 percent confidence interval, we believe the overpayment was between $1,233,468 and $2,560,933.

Although we found documentation that indicated Homebound monitored its employees, the results of our review indicated the monitoring was not adequate to ensure claims submitted were for services that met Medicare reimbursement requirements. The monitoring did not

properly address services that were not reasonable or medically necessary, were lacking proper physician authorization, and were not properly documented.

We recommend that the Health Care Financing Administration (HCFA): (1) instruct the fiscal intermediary (FI) to recover overpayments of $1,860,760 ($627,292 for FY 1995 and $1,233,468 for FY 1996); (2) require the FI to instruct Homebound on its responsibility to comply with the Medicare regulations; and (3) monitor the FI and Homebound to ensure that corrective actions are effectively implemented.

In response to our draft report, HCFA concurred with our recommendations. The response from HCFA is included, in its entirety, as APPENDIX D of this report.

We would appreciate your views and the status of any action taken or contemplated on our recommendations within 60 days. Any questions or further comments on any aspect of the report are welcome. Please address them to George M. Reeb, Assistant Inspector General for Health Care Financing Audits, at (410) 786-7104.

To facilitate identification, please refer to Common Identification Number A-04-98-01184 in all correspondence relating to this report.

Attachments

Department of Health and Human Services

OFFICE OF INSPECTOR GENERAL

REVIEW OF COSTS CLAIMED BY HOMEBOUND MEDICAL CARE, INC.

JUNE GIBBS BROWN
Inspector General

SEPTEMBER 1999
A-04-98-01184

DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Memorandum

Date: SEP 22 1999

From: June Gibbs Brown
Inspector General

Subject: Review of Costs Claimed by Homebound Medical Care, Inc. (A-04-98-01184)

To: Nancy-Ann Min DeParle
Administrator
Health Care Financing Administration

This final report provides you with the results of our audit of Homebound Medical Care, Inc. (Homebound) in Memphis, Tennessee.

OBJECTIVE

The objective of this audit was to determine whether the home health care services claimed by Homebound met Medicare reimbursement requirements.

SUMMARY OF FINDINGS

In each of Homebound's Fiscal Years (FY) 1995 and 1996, we selected 100 claims for review. We found 25 claims for FY 1995 and 33 claims for FY 1996 involved services that did not meet Medicare reimbursement requirements.

- For FY 1995, we found 226 of the 1,772 home health services paid should not have been reimbursed. The unallowable services included 44 services that were not reasonable or medically necessary, 144 services that lacked proper physician authorization, and 38 services that were not properly documented.

- For FY 1996, we found 303 of the 1,819 home health services paid should not have been reimbursed. The unallowable services included 84 services that were not reasonable or medically necessary, 213 services that lacked proper physician authorization, and 6 services that were not properly documented.

Based on our review, we estimate that at least $627,292 of the $10 million claimed by Homebound in FY 1995 did not meet the reimbursement requirements. Using the 90 percent confidence interval, we believe the overpayment was between $627,292 and $1,848,060.

We also estimate at least $1,233,468 of the $11.6 million claimed by Homebound in FY 1996 did not meet the reimbursement requirements. Using the 90 percent confidence interval, we believe the overpayment was between $1,233,468 and $2,560,933.

Although we found documentation that indicated Homebound monitored its employees, the results of our review indicated that the monitoring was not adequate to ensure that claims submitted were for services that met Medicare reimbursement requirements. The monitoring did not properly address the services that were not reasonable or medically necessary, were lacking proper physician authorization, and were not properly documented.

We recommend that the Health Care Financing Administration (HCFA): (1) instruct the fiscal intermediary (FI) to recover overpayments of $1,860,760 ($627,292 for FY 1995 and $1,233,468 for FY 1996); (2) require the FI to instruct Homebound on its responsibility to comply with the Medicare regulations; and (3) monitor the FI and Homebound to ensure corrective actions are effectively implemented.

In response to our draft report, HCFA concurred with these recommendations. The response from HCFA, in its entirety, is included as APPENDIX D of this report.

BACKGROUND

Homebound Medical Care, Inc.

Homebound is a Medicare certified home health agency (HHA) with a principal place of business in Memphis, Tennessee. Homebound is a for-profit corporation and provides home health services to Shelby and surrounding county residents.

A Medicare certified HHA, such as Homebound, can either provide home health services itself or make arrangements with other certified or non-certified providers for home health services. Homebound employs nurses, aides, therapists, and administrative personnel in Shelby and surrounding counties.

During the period of our review, Homebound was reimbursed under the periodic interim payment (PIP) method. Payments under PIP approximate the cost of covered services rendered by the provider. Interim reimbursement from Medicare totaled $21,847,359 ($10,695,907 for FY 1995 and $11,151,452 for FY 1996). Interim payments are adjusted to actual costs based on annual cost reports. Homebound submitted cost reports totaling $21,584,583 ($10,005,276 for FY 1995 and $11,579,307 for FY 1996).

Authority and Requirements for Home Health Services

The legislative authority for coverage of home health services is contained in sections 1814, 1835, and 1861 of the Social Security Act. Governing regulations are found in 42 CFR and HCFA coverage guidelines are found in the Medicare HHA Manual.

Fiscal Intermediary Responsibilities

The HCFA contracts with FIs, usually insurance companies, to assist in administering the home health benefits program. The FI for Homebound is Palmetto Government Benefits Administrators located in Columbia, South Carolina. The FI is responsible for:

- processing claims for HHA services;
- performing liaison activities between HCFA and the HHAs;
- making interim payments to HHAs; and
- conducting audits of cost reports submitted by HHAs.

SCOPE

The objective of the audit was to determine whether the home health care services claimed by Homebound met Medicare reimbursement requirements. The audit was performed in partnership with the FI under Operation Restore Trust.

Homebound claimed 23,080 services on 8,955 claims for FY 1995. We reviewed a statistical sample of 100 claims which included 1,772 services for 97 different beneficiaries. For FY 1996, Homebound claimed 25,238 in services on 8,986 claims. We reviewed a statistical sample of 100 claims which included 1,819 services for 98 different beneficiaries. APPENDIX A contains the details of our sampling methodology.

We are reporting the overpayment projected from these samples at the lower limit of the 90 percent confidence interval. The claims submitted by Homebound were for services provided during the periods July 1, 1994 through June 30, 1995, and July 1, 1995 through June 30, 1996.

APPENDIX C contains the results and projection of our sample. We used applicable laws, regulations, and Medicare guidelines to determine whether the services claimed by Homebound met the Medicare reimbursement requirements.

We also used the sample to determine the percentage of certain characteristics. APPENDIX B contains the details of the results of these projections.

Generally, for each of the 100 claims in each FY we interviewed:

- the beneficiary or a knowledgeable acquaintance;
- the physician who certified the plan of care; and
- the beneficiary's personal physician.

Our interviews included validation of beneficiaries' and physicians' signatures when necessary.

Our FY 1995 sample involved 100 claims paid on behalf of 97 beneficiaries. In the development of this sample, we interviewed 25 of the 97 beneficiaries. We were unable to interview 72 of the beneficiaries or a close acquaintance because 5 could not be located, 61 were deceased, 2 had moved out of State, and 4 were hospitalized or in a nursing home.

Our FY 1996 sample involved 100 claims paid on behalf of 98 beneficiaries. In the development of our FY 1996 sample, we interviewed 42 of the 98 beneficiaries. We were unable to interview 56 of the beneficiaries or a close acquaintance because 5 could not be located, 43 were deceased, 4 had moved out of State, and 4 were hospitalized or in a nursing home.

In cooperation with the FI, we had the medical records reviewed by medical personnel to determine whether the claimed services met Medicare reimbursement requirements for homebound status and medical necessity.

In the development of our FY 1995 and FY 1996 samples, we interviewed the prescribing physicians for the claims in our sample only where FI medical personnel questioned charges based on medical records review. For our 1995 sample, we interviewed 12 of 21 physicians. We were unable to interview nine of the physicians because six could not be located and three had moved or were no longer in practice. For our 1996 sample, we interviewed 14 of 21 physicians. We were unable to interview seven of the physicians because six could not be located and one had moved or was no longer in practice.

We conducted a limited review of Homebound's internal controls. Specifically, we reviewed the policies and procedures in place to determine the beneficiaries' eligibility to receive home health services.

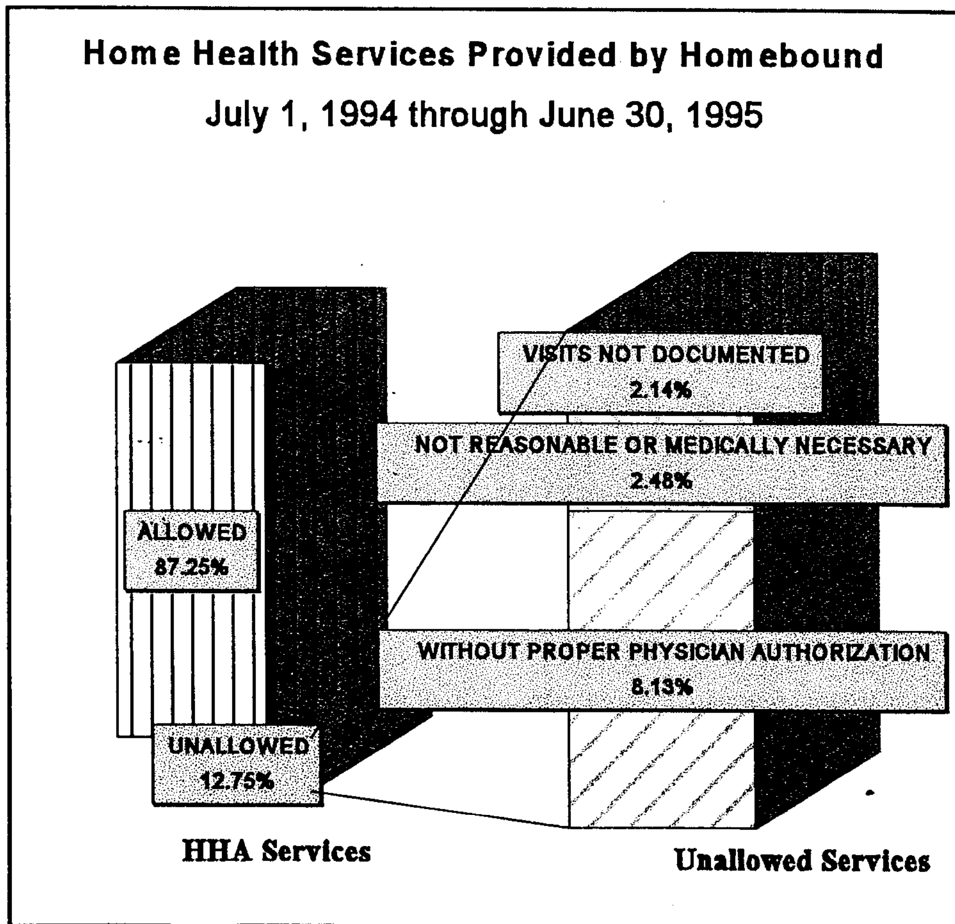
Our field work was performed at Homebound's home office (HealthSphere of America) in Memphis, Tennessee. Interviews were conducted in the beneficiaries' residences and the physicians' offices. Our audit was conducted in accordance with generally accepted government auditing standards.

DETAILED RESULTS OF REVIEW

Fiscal Year Ending June 30, 1995

For FY 1995, our audit disclosed 226 of the 1,772 services included in 25 of the 100 paid claims submitted by Homebound did not meet the Medicare reimbursement requirements. For the population of HHA claims processed by the FI, we estimate 12.75 percent of the services contained in the claims did not meet Medicare reimbursement requirements. The percentage was computed using a cluster sampling methodology, considering each claim to be a cluster of services.

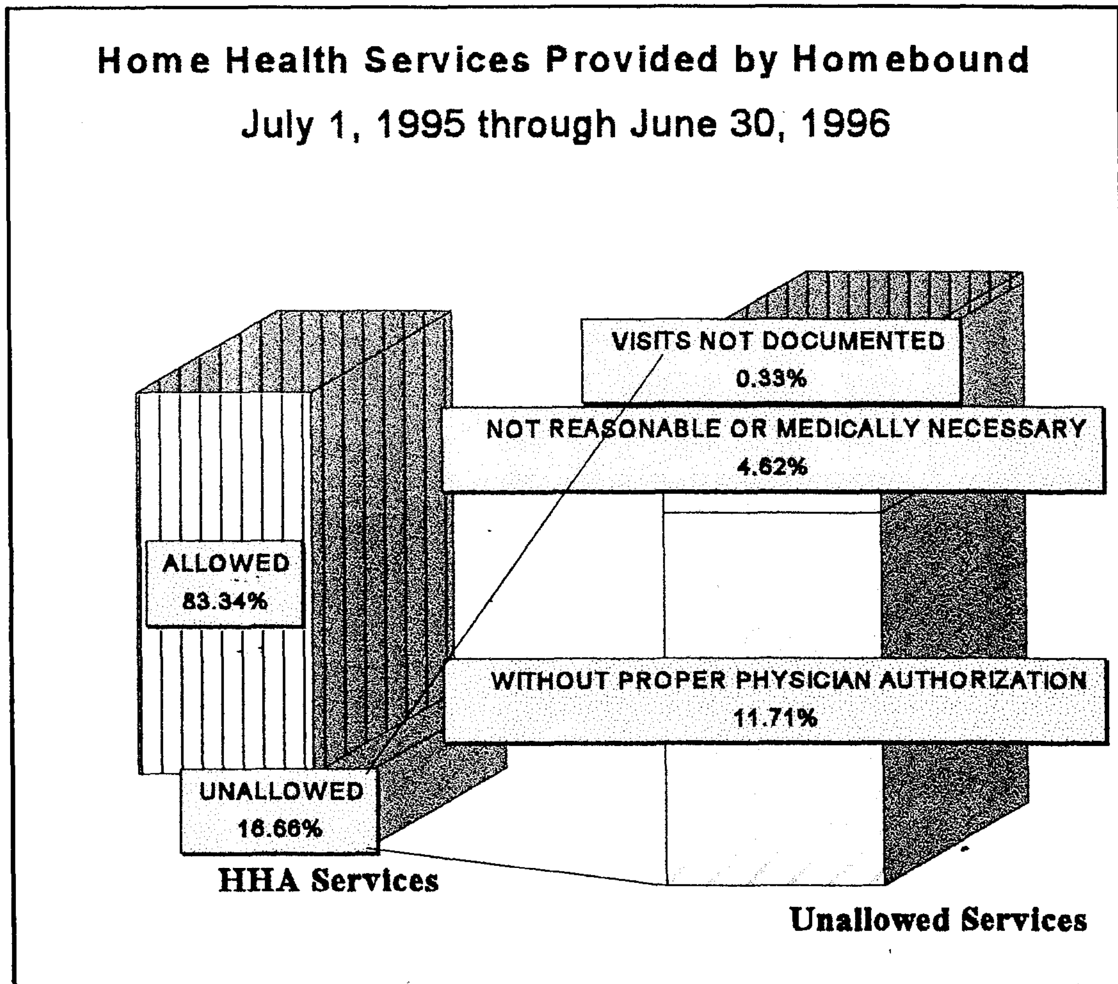
Based on a statistical sample, we estimate Homebound received overpayments totaling at least $627,292. Using the 90 percent confidence interval, we believe the overpayment was between $627,292 and $1,848,060 for FY 1995.



Fiscal Year Ending June 30, 1996

For FY 1996, our audit disclosed 303 of the 1,819 services included in 33 of the 100 paid claims submitted by Homebound did not meet the Medicare reimbursement requirements. For the population of HHA claims processed by the FI, we estimate 16.66 percent of the services contained in the claims did not meet Medicare reimbursement requirements. The percentage was computed using a cluster sampling methodology, considering each claim to be a cluster of services.

Based on a statistical sample, we estimate that Homebound received overpayments totaling at least $1,233,468. Using the 90 percent confidence interval, we believe the overpayment was between $1,233,468 and $2,560,933 for FY 1996.



Although we found documentation that Homebound monitored its employees, this monitoring was not adequate to ensure claims submitted were for services that met Medicare reimbursement requirements. The monitoring did not properly address the reasonableness and medical necessity of services, services that lacked proper physician authorization, and services that were not properly documented.

Services That Were Not Reasonable or Medically Necessary

Our review disclosed that 128 services contained in 26 of the 200 claims were not considered reasonable or necessary by the FI medical personnel.

The regulations at 42 CFR 409.42 (1) provide that the individual receiving home health benefits must be in need of intermittent skilled nursing care or physical or speech therapy. Section 203.1.B of the Medicare HHA Manual states the beneficiary's health status and medical need as reflected in the plan of care and medical records provide the basis for determination as to whether services provided are reasonable and necessary; and section 205.1.B.1 states "Observation and assessment of the beneficiary's condition by a licensed nurse are reasonable and necessary skilled services when the likelihood of change in a patient's condition requires skilled nursing personnel to identify and evaluate the patient's need for possible modification of treatment or initiation of additional medical procedures until the beneficiary's treatment regime is essentially stabilized."

Review by FI medical personnel of FY 1995 claims disclosed that 44 services contained in 10 of the 100 claims were not considered reasonable or medically necessary. Below are some examples of these questioned charges.

- Three skilled nursing visits to a beneficiary were denied because the only skilled service provided was pre-filling insulin syringes, while no attempt was made to teach the beneficiary to fill the insulin syringes.

- Eight skilled nursing visits were denied because the patient's diabetic condition had stabilized and no longer required skilled services.

Review by FI medical personnel of FY 1996 claims disclosed that 84 services contained in 16 of the 100 claims were not considered reasonable or medically necessary. Below are some examples of these questioned charges.

- Six aide visits were denied because no personal care was rendered by the aide on these visits.

- Four skilled nursing visits were denied because superficial wound care is not a skilled nursing service.

Services Without Proper Physician Authorization

Our review disclosed that 357 services contained in 72 of the 200 claims did not have proper physician authorization. The authorization was deficient in three areas: services were provided and billed in excess of physician's orders, services that had not been specified on the order were provided and billed, and timely certifications of the plan of care were not performed.

The term "HHA plan of care" is used to refer to the medical treatment plan established by the treating physician with the assistance of the home health care nurse. It is anticipated that a discipline-oriented plan of care will be established, where appropriate, by an HHA nurse regarding nursing and home health aide services and by a skilled therapist regarding specific therapy treatments. These HHA plans of care may be incorporated within the physician's plan of care or separately prepared. The physician's orders for services in the HHA plan of care must specify the medical treatment to be furnished as well as the type of home health discipline that will furnish the ordered services and at what frequency and duration the services will be furnished. Orders for care may indicate a specific range in frequency of visits to ensure that the most appropriate level of services is furnished. If a range of visits is ordered, the upper limit of the range is considered the specific frequency [42 CFR 409.43(f)].

We found 6 instances in FY 1995 and 29 instances in FY 1996 where services provided and billed exceeded what the physician had ordered. Below is an example of some of these charges:

- Five skilled nursing visits were denied because they were not within the written time frames of the physicians orders.

The HHA plan of care must contain all pertinent diagnoses, including: the beneficiary's mental status; the types of services, supplies, and equipment ordered; the frequency of the visits to be made; prognosis; rehabilitation potential; functional limitations; activities permitted; nutritional requirements; medication and treatments; safety measures to protect against injury; discharge plans; and any additional items the HHA or physician choose to include [42 CFR 484.18(a)].

We found 49 instances in FY 1995 and 39 instances in FY 1996 where services provided and billed were not specified on the physician's orders. Below are some examples of these questioned charges:

- The physical therapy evaluation and related physical therapy visits rendered with a beneficiary were denied because the physician's orders did not include physical therapy.

- Two medical social worker visits were denied because the physician's orders did not specify the frequency and duration of the visits to be made.

The HHA plan of care must be signed and dated by the physician before the bill for services is submitted to the FI for payment. Any changes in the plan must also be signed and dated by the physician [42 CFR 409.43(c)]. If the physician fails to date a certification or plan of care, the date the HHA actually receives the document, and so indicates the receipt by a "date stamp," is considered the signed date.

We found 89 instances in FY 1995 and 145 instances in FY 1996 where the certifications were untimely. Below is an example of these questioned charges:

- One nursing visit and one aide visit were denied as not supported by valid certification. We determined that the HHA did not receive the certification from the physician until February 22, 1995 while Medicare was billed on February 16, 1995.

Services Not Documented

Our review disclosed that 44 services contained in 12 of the 200 claims were for services that were not adequately documented. Medical and facility records documentation of Medicare services provided is necessary for the medical reviewer to determine coverage. If the medical records do not support the services billed, the associated charges will be denied. All documentation showing that services provided are Medicare-covered must be contained in the medical record or alternately supported in the facility's supplemental therapy billing and service provision logs. For payment to be made to a participating provider of covered items and services it furnishes, the provider must have a recordkeeping capability sufficient to determine the costs of services furnished to Medicare beneficiaries [Sec. 130.B HCFA-Pub. 12].

We found 38 instances in FY 1995 and 6 instances in FY 1996 where services were not documented.

Effect

We estimate during FY 1995 and FY 1996, Homebound was paid at least $1,860,760 for unallowable home health services. We separately projected the sample overpayment amounts to the 2 years sampled.

The 90 percent confidence interval for FY 1995 was $627,292 to $1,848,060 with a midpoint of $1,237,676. Using the lower limit of the confidence interval, we are 90 percent confident that Homebound was overpaid by at least $627,292 for FY 1995 unallowable home health services.

The 90 percent confidence interval for FY 1996 was $1,233,468 to $2,560,933 with a midpoint of $1,897,201. Using the lower limit of the confidence interval, we are 90 percent confident that Homebound was overpaid by at least $1,233,468 for FY 1996 unallowable home health services.

Our audit disclosed that 12.75 percent of the services in FY 1995 and 16.66 percent of services in FY 1996 were unallowable.

Homebound Did Not Properly Monitor Services

We reviewed Homebound's policies and procedures to monitor the work performed by its employees in determining the medical necessity for patients to receive HHA services. Documentation found in the medical records indicated Homebound conducted supervisory visits to ensure proper medical care was being rendered. As evidenced by the problems we found during our review, HCFA's administrative procedures were not being followed by Homebound's supervisory and administrative billing personnel. Plans of care were not being reviewed for appropriate signatures and dates, and billings to Medicare were not checked to determine that services were in accordance with the plan of care specifics. Had appropriate procedures been in place, the services billed that did not meet HCFA's administrative requirements would have been reduced.

RECOMMENDATIONS

We recommend that HCFA:

- instruct the FI to recover overpayments of $1,860,760,
- require the FI to instruct Homebound on its responsibility to comply with Medicare regulations, and
- monitor the FI and Homebound to ensure that corrective actions are effectively implemented.

HCFA's RESPONSE

In response to our draft report, HCFA concurred with these recommendations. The response from HCFA, in its entirety, is included as APPENDIX D of this report.

APPENDICES

AUDIT OF HOMEBOUND HOME HEALTH SERVICES SAMPLING METHODOLOGY

OBJECTIVE:

The sample objective was to estimate overpayments for claims that did not meet Medicare reimbursement requirements. To achieve our objective, we selected two statistical samples of home health claims from a universe of home health claims submitted by Homebound during the FYs ended June 30, 1995 and June 30, 1996, respectively. We obtained claim documentation and interviewed beneficiaries and physicians identified in each claim. We used the results to project the overpayments for services that were not reimbursable to Homebound during the FYs ended June 30, 1995 and June 30, 1996, respectively.

POPULATION:

The universes consisted of 8,955 claims for 23,080 home health services provided by Homebound during the period July 1, 1994 to June 30, 1995 and 8,986 claims for 25,238 home health services provided by Homebound during the period July 1, 1995 to June 30, 1996.

SAMPLING UNIT:

The sampling unit was a paid home health claim for a Medicare beneficiary. A paid claim included multiple services and items of cost for the home health services provided.

SAMPLING DESIGN:

Two unrestricted random samples were used.

SAMPLE SIZE:

A sample of 100 claims for each FY.

ESTIMATION METHODOLOGY:

We used the billed charges per visit for each type of service submitted to the FI for reimbursement by Homebound in the FY ended June 30, 1995 and for FY ended June 30, 1996. For the unallowed services on a sample unit, we computed the amount of error by multiplying the number of unallowed services for each type of claim by the amounts billed to Medicare by Homebound in the appropriate FY.

Using the Department of Health and Human Services (HHS), Office of Inspector General (OIG), Office of Audit Services RAT-STATS Variables Appraisal Program, we estimated the overpayments where services were either not reasonable or medically necessary, lacked proper physician authorization, or had no documentation of the visits.

AUDIT OF HOMEBOUND HOME HEALTH SERVICES
ATTRIBUTES PROJECTIONS

REPORTING THE RESULTS:

Fiscal Year Ending June 30, 1995

We used our random sample of 100 claims out of 8,955 claims to project the occurrence of certain types of errors. Since the sample was taken of claims, we used the HHS, OIG, RAT-STATS Two-Stage Attribute Appraisal Program to project the percentage of services in error. For this appraisal, we considered each claim to be a cluster of services. The results of these projections are presented below:

Services That Did Not Meet the Requirements

Quantity of Services in Error	226
Point Estimate	12.75%
Precision at the 90% Confidence Level	+/- 6.20%

Services That Were Not Reasonable or Medically Necessary

Quantity of Services in Error	44
Point Estimate	2.48%
Precision at the 90% Confidence Level	+/- 1.48%

Services That Lacked Proper Physician Authorization

Quantity of Services in Error	144
Point Estimate	8.13%
Precision at the 90% Confidence Level	+/- 5.65%

No Documentation of Visits

Quantity of Services in Error	38
Point Estimate	2.14%
Precision at the 90% Confidence Level	+/- 2.74%

Fiscal Year Ending June 30, 1996

We used our random sample of 100 claims out of 8,986 claims to project the occurrence of certain types of errors. Since the sample was taken of claims, we used the HHS, OIG, RAT-STAT Two-Stage Attribute Appraisal Program to project the percentage of services in error. For this appraisal, we considered each claim to be a cluster of services. The results of these projections are presented below:

Services That Did Not Meet the Requirements

Quantity of Services in Error	303
Point Estimate	16.66%
Precision at the 90% Confidence Level	+/- 5.64%

Services That Were Not Reasonable or Medically Necessary

Quantity of Services in Error	84
Point Estimate	4.62%
Precision at the 90% Confidence Level	+/- 2.37%

Services That Lacked Proper Physician Authorization

Quantity of Services in Error	213
Point Estimate	11.71%
Precision at the 90% Confidence Level	+/-5.25%

No Documentation of Visits

Quantity of Services in Error	6
Point Estimate	0.33%
Precision at the 90% Confidence Level	+/- 0.30%

APPENDIX C

AUDIT OF HOMEBOUND HOME HEALTH SERVICES
VARIABLES PROJECTIONS

REPORTING THE RESULTS:

Fiscal Year Ending June 30, 1995

We used our random sample of 100 claims out of 8,955 claims to project the value of claims that did not meet the requirements. The lower and upper limits are shown at the 90 percent confidence level. The results of these projections are presented below:

Claims That Did Not Meet the Requirements

Identified in the sample	
Number of Claims	25
Value	$ 13,821
Point Estimate	$1,237,676
Lower Limit	$ 627,292
Upper Limit	$1,848,060

Fiscal Year Ending June 30, 1996

We used our random sample of 100 claims out of 8,986 claims to project the value of claims that did not meet the requirements. The lower and upper limits are shown at the 90 percent confidence level. The results of these projections are presented below:

Claims That Did Not Meet the Requirements

Identified in the sample	
Number of Claims	33
Value	$ 21,113
Point Estimate	$1,897,201
Lower Limit	$1,233,468
Upper Limit	$2,560,933

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

The Administrator
Washington, D.C. 20201

DATE: JUN 2 3 1999

TO: June Gibbs Brown
Inspector General

FROM: Nancy-Ann Min DeParle
Administrator

NMD

SUBJECT: Office of Inspector General (OIG) Draft Report: "Review of Costs Claimed by Homebound Medical Care, Inc.," (A-04-98-01184)

Thank you for the opportunity to review the above-referenced report concerning medical review of claims for home health care services claimed by Homebound Medical Care, Inc., (Homebound) in Memphis, Tennessee. I also want to acknowledge that this audit was performed in partnership with our Fiscal Intermediary (FI), Palmetto Government Benefits Administrators (PGBA), under Operation Restore Trust.

HCFA concurs with the three OIG report recommendations. Our specific comments follow.

OIG Recommendation 1
HCFA should instruct the FI to recover overpayments of $1,860,760.

HCFA Response
We concur and will instruct PGBA to recover overpayments from the provider. We cannot, however, attest to the exact overpayment figure stated in the report until PGBA receives the audit work papers. A copy of your report will be sent to our Atlanta Regional Office so that it can review the audit findings and ensure that PGBA receives the necessary work papers from OIG for establishing and recouping the correct overpayment amount.

OIG Recommendation 2
HCFA should require the FI to instruct Homebound on its responsibility to comply with Medicare regulations.

HCFA Response
We concur and will instruct our Atlanta Regional Office (RO) to work with PGBA to ensure that Homebound has been properly educated and complies with this recommendation.

OIG Recommendation 3
HCFA should monitor the FI and Homebound to ensure that corrective actions are effectively implemented.

HCFA Response
We concur and will instruct our Atlanta RO to monitor this process.