

Department of Health and Human Services

**OFFICE OF
INSPECTOR GENERAL**

NATIONAL MARROW DONOR PROGRAM

FINANCING DONOR CENTERS



JUNE GIBBS BROWN
Inspector General

DECEMBER 1996

OEI-01-95-00123

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EXECUTIVE SUMMARY

PURPOSE

To help assess the relative efficiency and effectiveness of donor centers paid on a contract basis and those paid on a fee-for-service basis in the National Marrow Donor Program.

BACKGROUND

The National Marrow Donor Program (NMDP) is a nonprofit organization based in Minneapolis, Minnesota that finds matching donors for patients seeking a bone marrow transplant. The NMDP operates the congressionally authorized marrow donor registry under contract with the Health Resources and Services Administration (HRSA).

The NMDP uses two methods to finance the donor centers that recruit volunteers to join the registry. Thirty-five donor centers are paid through a cost-based contract that is negotiated between NMDP and each center; 22 contract centers are paid through HRSA funds, and 13 from NMDP program income. Sixty-two centers are paid on a fee-for-service basis for file maintenance, donor recruitment, and donor search activities; fee-for-service centers are all paid using NMDP program income, not HRSA contract funds. This report is based on a review of data maintained by the NMDP.

FINDINGS

For the year ending April 30, 1995, NMDP's payments to the 35 contract donor centers comprised 80 percent of payments to all donor centers.

The 35 contract centers received \$11.8 million.

The 62 fee-for-service centers received \$2.9 million.

The contract centers are more expensive to NMDP than fee-for-service centers on five of six key funding measures.

Funding Measure	Average Payment	
	Contract centers	Fee-for-service centers
per donor	\$ 12.74	\$ 8.89
per net new donor recruited	60.28	35.64
per request for first level followup testing	423	323
per donor retained at first level followup testing	618	426
per request for confirmatory testing (difference not statistically significant)	2,044	1,522
per donor retained at confirmatory testing	2,654	1,871

Despite receiving higher per unit payments, the performance of contract centers is lower than that of fee-for-service centers in overall recruitment and in donor retention. While contract centers perform better in minority recruitment, both types of centers could improve their performance on this measure.

Performance Measure	Contract centers	Fee-for-service centers
percent of total NMDP funding	80 %	20 %
OVERALL RECRUITMENT: percent of donors on registry	74	26
percent of new donors recruited	70	30
MINORITY RECRUITMENT: (percent of centers that exceed local population distribution)		
Blacks	38	28
Hispanics	29	12
DONOR RETENTION RATE: first level followup	68	76
confirmatory testing	77	81

RECOMMENDATIONS

The Health Resources and Services Administration and the National Marrow Donor Program should reexamine the method used to finance donor centers. The goal of this reexamination should be development and implementation of a financing approach containing incentives that encourage an efficient and effective donor center system. Such a system should emphasize recruitment and retention of donors, and it should place particular emphasis on donors from racial and ethnic minority groups.

Because revising the financing system may take some time, we urge the NMDP and HRSA to commence this effort immediately. In addition, we recommend that the following short term actions should be undertaken:

HRSA should replicate the analysis conducted in this report, or a similar financial analysis, at the close of each fiscal year.

HRSA and the NMDP should develop procedures for conducting a performance audit of donor centers and a plan for implementing performance audits throughout the network. The plan for conducting and implementing these audits should be in place so that the audits, where necessary, can be carried out within the first year of the forthcoming contract.

HRSA should collaborate with the NMDP to develop efficiency measures and procedures for requiring centers to meet these measures. These measures and procedures should be implemented within the first year of the forthcoming contract.

COMMENTS ON THE DRAFT REPORT

We received comments on the draft report from the Health Resources and Services Administration (HRSA), who in turn requested comments on the report from the National Marrow Donor Program (NMDP).

HRSA and NMDP cite a number of additional factors that should be considered in developing a multivariate analysis model that would provide additional information on financing donor centers. We agree that analysis of these factors could be useful. However, we still urge reexamination of the financing system. We continue to believe that the financing system should contain incentives that encourage an efficient and effective donor center system.

HRSA and NMDP generally agree with our other recommendations. We adopt their suggested revisions in the language of them. But we also emphasize that these recommendations should be implemented within the first year of the new contract. We are concerned that an open-ended time frame could result in unnecessary delays.

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INTRODUCTION

PURPOSE:

To help assess the relative efficiency and effectiveness of donor centers paid on a contract basis and those paid on a fee-for-service basis in the National Marrow Donor Program.

BACKGROUND:

Bone Marrow Transplantation

Bone marrow transplantation is a treatment for blood borne diseases such as leukemias and lymphomas. About 16,000 people are diagnosed each year with leukemias and other fatal blood diseases.¹ Many of these people could benefit from a bone marrow transplant, a procedure in which the patient's diseased bone marrow is destroyed and marrow from a healthy donor is infused into the patient's blood stream. Bone marrow produces platelets, red blood cells, and white blood cells, the agents of the body's immune system. For a bone marrow transplant to be successful, the patient's and donor's antigens must match as closely as possible. About thirty percent of the time the patient finds a sibling with matching antigens. In the other seventy percent of cases the patient must seek an unrelated donor.

Three pairs of blood cell proteins, known as the Human Leukocyte Antigen (HLA) -A, -B and -DR, are important in determining whether a match will be successful. One antigen in each pair is inherited from an individual's mother, the other from the father. Because there are numerous antigens at each HLA-A, -B, -DR locus, more than 600 million combinations are theoretically possible.²

The National Marrow Donor Program

The National Marrow Donor Program (NMDP) is a nonprofit organization based in Minneapolis, Minnesota. The NMDP operates the Congressionally authorized marrow donor registry under contract with the Health Resources and Services Administration (HRSA). The contract is funded at \$40,471,000, from July 1994 through April 1997.

The NMDP began operations in September 1987 as a non-profit organization funded through a contract from Office of Naval Research. The NMDP was created through a cooperative effort of the American Association of Blood Banks, American Red Cross, and Council of Community Blood Centers. The NMDP began search operations with 10 transplant centers, 49 donor centers and 8,000 donors listed on the registry. As bone marrow transplantation came to be seen as viable technique, the U.S. Navy recognized that it was inappropriate for the military to maintain a civilian registry. In 1989, responsibility for the contract was transferred to the National Heart, Lung, and Blood Institute in the National Institutes of Health. Contract oversight for the NMDP was again

transferred in 1994, this time to HRSA in recognition that NMDP was a service delivery program, rather than a basic research initiative.

The major functions of the registry are to: (1) "establish a system for finding marrow donors suitably matched to unrelated recipients for bone marrow transplantation;" (2) "recruit potential donors;" and (3) "increase the representation of individuals from racial and ethnic minority groups . . . in order to enable an individual in a minority group, to the extent practicable, to have a comparable chance of finding a suitable unrelated donor as would an individual not in a minority group." In addition, the statute calls for a system of patient advocacy, support studies and demonstration projects, and the collection and dissemination of data concerning bone marrow transplantation and collection.³

The NMDP accredits donor centers that recruit volunteers to join the registry. As of October 1995, the registry contained almost 1.5 million donors in 97 domestic donor centers, and an additional 450,000 donors from 6 foreign centers. Eighty-one of the domestic centers are blood centers, either Red Cross-affiliated or part of community blood centers; 13 centers are departments of hospitals, and 3 are free standing centers. Six of the domestic centers have more than 50,000 donors on their list; another 35 centers have between 10,000 and 50,000 donors each. The remaining 56 centers have fewer than 10,000 donors.

Financing Donor Center Operations

The cost of NMDP's 3-year contract with HRSA is \$40,471,000. This funding covers only a portion of the NMDP's operations, which has a total annual budget of approximately \$65 million. Over the 3-year contract period, \$23,287,969 million in HRSA funds is allocated for 22 cost-based contract donor centers and \$1,836,373 million is allocated for 3 cost-based recruitment groups. The remaining HRSA contract funds go for general operational costs for the registry and for research.

The NMDP funds participating donor centers and recruitment groups through two distinct approaches, cost-based contracts and fee-for-service payments.

Contract reimbursement. Thirty-five donor centers are paid through contracts. Twenty-two of these centers are reimbursed through HRSA funds, and 13 centers are reimbursed by NMDP through program income. Contract centers are paid on a prospectively negotiated cost-based contract. Payments to these centers cover direct expenses, such as labor and fringes, office supplies, travel, and donor expenses. These centers also receive a negotiated overhead amount that covers items such as rent and indirect administrative costs. The NMDP also reimburses cost based centers for certain supplies related to testing for donors who have been identified as potential matches.⁴

Fee-for-service payment. Sixty-two centers are paid on a fee-for-service basis. These

centers are paid only for specified activities. The fee-for-service payments come from NMDP program income, not from HRSA funds. The payments fall into three broad categories:

- File maintenance and support payments at \$25,000 for every 20,000 donors on the center's list;
- Recruitment fees at \$10 for each new white donor, \$28 for each new donor from a racial or ethnic minority group, and \$2 per donor for data entry following a recruitment drive;
- Search-related expenses, covering both staff time and supply costs for donors who have been identified as potential matches.⁵

SCOPE and METHODOLOGY

This report addresses the domestic donor centers only. We compare the 35 contract centers with the 62 fee-for service centers. Our report excludes the U.S. Navy's Bill Young Marrow Donor Center, because that center is funded through a budget from the Department of the Navy, rather than the contract and fee-for-service mechanisms that this report analyzes.

This report is one of four companion reports addressing the National Marrow Donor Program. The other three reports are: *National Marrow Donor Program: Progress in Minority Recruitment* (OEI-01-95-00120); *National Marrow Donor Program: Effectiveness in Retaining Donors* (OEI-01-95-00121); and *National Marrow Donor Program: Geographic Overlap Among Donor Centers* (OEI-01-95-00122).

We used four primary data sources in this report:

- 1) Aggregate statistical data maintained by NMDP on donor center activities regarding donor recruitment and donor retention.
- 2) Aggregate financial data from NMDP on payments made to the donor centers for the fiscal year running from May 1, 1994 through April 30, 1995.
- 3) A mail survey of the 97 domestic donor centers. We received 88 responses, a response rate of 91 percent.
- 4) Site visits to donor centers in California, Massachusetts, Minnesota, New Jersey, North Carolina, and South Carolina.

Appendix B provides a more detailed description of our methodology.

We conducted this study in accordance with the *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency.

FINDINGS

FOR THE YEAR ENDING APRIL 30, 1995, NMDP'S PAYMENTS TO THE 35 CONTRACT DONOR CENTERS COMPRISED 80 PERCENT OF PAYMENTS TO ALL DONOR CENTERS.

- **The 35 contract centers received \$11.8 million:**
 - ▶ \$6.2 million (53 percent) for staff compensation;
 - ▶ \$0.7 million (6 percent) for direct supplies;
 - ▶ \$4.9 million (42 percent) for overhead.

The contract centers are the largest centers in the program, in terms of number of donors, requests for follow-up activities, and actual marrow collection. The range of total payments to centers for this 12-month period was \$82,151 to \$1,294,451, with a median payment of \$242,797. All but three contract centers received larger payments than the highest paid fee-for-service centers.

- **The 62 fee-for-service centers received \$2.9 million:**
 - ▶ \$2.7 million (92 percent) for staff compensation;
 - ▶ \$0.2 million (8 percent) for direct supplies.

The range of total payments in the fee-for-service centers was \$6,644 to \$114,375, with a median of \$40,604. Out of 62 centers, all but 9 received lesser amounts than the lowest paid contract centers.

THE CONTRACT CENTERS ARE MORE EXPENSIVE TO NMDP THAN FEE-FOR-SERVICE CENTERS.

We present summary data on different aspects of payments to donor centers in an effort to help assess the overall cost-efficiency of donor centers in the two categories. Appendix A provides more detailed data on each of these factors. With one exception (cost per CT request made), all the differences are statistically significant.

- **Payments per donor:**
 - ▶ *Payments per donor listed on the registry on April 30, 1995 averaged \$12.74 in the contract centers, versus \$8.89 in the fee-for-service centers.*

We calculated total payments made by NMDP over the course of the year divided by the number of donors on each donor center's list at the close of the year. This measure provides an indication of comparable costs that donor centers incur in recruiting donors and in maintaining the current donor list.

- ▶ *Payments per new donor recruited in the year ending April 1995 averaged \$60.28 in the contract centers, versus \$35.64 in the fee-for-service center.*

This measure defines payments for the net number of new donors added to each center's list during the year, thus reflecting cost of new activity over that time period.

- **Payments per donor retained at first stage follow-up testing (DR testing):**

The patient's physicians at the transplant center select potential donors from the formal search report for further compatibility typing. These requests are sent to the NMDP coordinating center, which then notifies the appropriate donor center that one of their donor center's code numbers has been selected. The donor center contacts that donor for first level followup testing (DR) to type the donor's HLA-DR antigens.

- ▶ *Payments per DR request made in the year ending March 1995 averaged \$423 in the contract centers, versus \$323 in the fee-for-service centers.*
- ▶ *Payments per DR request actually completed averaged \$618 in the contract centers, versus \$426 in the fee-for-service centers.*

- **Payments per donor retained at second stage follow-up testing (CT testing):**

If the donor's HLA-DR antigens match the patient's, the patient's physician may decide that the donor represents a potential match. In that case, the physician, through NMDP, will ask the donor center to contact the donor for second level testing, called confirmatory testing (CT).

- ▶ *Payments per CT request made in the year ending March 1995 averaged \$2,044 in the contract centers versus \$1,522 in the fee-for-service centers.*

The difference between contract and fee-for-service centers in payments made per CT request made was not statistically significant.

- ▶ *Payments per CT request actually completed averaged \$2,654 in the contract centers, versus \$1,871 in the fee-for-service centers.*

- **One factor leading to higher payments for contract centers is explicit inclusion of administrative overhead in the payment rates that these centers receive.**

Overhead costs in the contract centers ranged from 20 percent to 51 percent of total payments made, with a median of 42 percent. In two centers, payments for overhead exceeded 50 percent of total payments; in 4 centers overhead payments exceeded payments for direct staffing costs.

These overhead payments averaged:

- \$5.39 per donor on their lists.
- \$26.03 for each new donor.
- \$180 per DR request.
- \$264 for each DR request filled.
- \$850 per CT request.
- \$1,153 for each CT request filled.

Responses to our survey indicate that the parent institutions of fee-for-service centers, rather than the NMDP, are paying the substantial share of overhead for the fee-for-service donor centers. 84 percent of the fee-for-service centers reported that they receive financial support for center staff (such as the center director's salary) from their parent institution, versus 37 percent of the contract centers.⁶

DESPITE THE HIGHER PER UNIT PAYMENTS TO CONTRACT CENTERS, THE OVERALL PERFORMANCE OF CONTRACT CENTERS IS LOWER THAN THAT OF THE FEE-FOR-SERVICE CENTERS ON THREE OF FOUR EFFECTIVENESS MEASURES WE DEVELOPED.

We developed four effectiveness measures, two related to recruitment and two related to donor retention.

Recruitment Effectiveness Measures

- ▶ **Overall Recruitment.** *Contract centers, which receive 80 percent of NMDP financial support, listed 74 percent of donors on the registry in April 1995, and 70 percent of the increase in donors from May 1994 through April 1995.*

On April 30, 1995, the domestic registry contained 1,234,272 donors,⁷ up from 964,790 12 months earlier. Contract centers listed 908,765 of these donors (74 percent), while 325,507 (26 percent) were on the lists of fee-for-service centers.

Of the 269,482 new donors added to the list, 188,320 (70 percent) were recruited by contract centers, and 81,162 (30 percent) by the fee-for-service centers.

- ▶ **Minority Recruitment.** *Contract centers were more likely than fee-for-service centers to have a proportion of minority donors that equals or exceeds the proportion of minorities living in their service area, although both types of centers could improve their performance on this measure.*
 - ▶ Thirty-eight percent of the 35 contract centers have recruited a higher proportion of blacks than reside in their service area, versus 28 percent of the 62 fee-for-service centers.
 - ▶ Twenty-nine percent of the contract centers have recruited a higher proportion of Hispanics than reside in their service area, versus 12 percent of the fee-for-service centers.

On April 30, 1995, the domestic registry contained 284,658 minority donors. Of these minority donors, 213,955 (75 percent) were in contract centers, 70,703 (25 percent) in fee-for-service centers. Contract center lists comprised 77 percent of black donors, 70 percent of Asian/Pacific Islander donors, 78 percent of Hispanic donors, and 74 percent of American Indian/Alaska Native donors.

One explanation we heard for the success of contract centers in this area is the flexibility their contracts give them to hire staff and focus on minority recruitment. One donor center that had recently moved to a contract from fee-for-service payment described this as follows: "It is so much easier to recruit now. We are able to attend minority related conventions because we have a budget for them."

Our companion report, *National Marrow Donor Program: Progress in Minority Recruitment* (OEI-01-95-00120), provides additional information on our assessment of the NMDP's performance in increase the representation of donors from racial and ethnic minority groups on the registry.

Donor Retention Measures

The NMDP identifies four reasons that an individual may not come forward for further testing at either DR or CT: unable to contact donor, donor not interested, donor medically deferred, donor temporarily unavailable. Our companion report, *National Marrow Donor Program: Effectiveness in Retaining Donors* (OEI-01-95-00121), provides an assessment of the overall effectiveness of the program in retaining donors at both the DR and CT stages.

- ▶ **Retention at DR testing.** *The contract centers retained 68 percent of donors at DR testing, versus 76 percent in the fee-for-service centers.*

Donor centers received 36,170 requests for DR testing in this 1-year period. Contract centers received 27,211 (75 percent) of these requests, and were able to fill 18,540 (68 percent of requests). These comprised 73 percent of all DR requests filled.

Fee-for-service centers filled 6,786 out of 8,959 requested (76 percent). These comprised 27 percent of all DR requests filled.

- ▶ **Retention at CT testing.** *The contract centers retained 77 percent of donors at CT testing, versus 81 percent in the fee-for-service centers.*

Donor centers received 7,667 requests for CT testing in this 1-year period. Contract centers received 5,766 (75 percent) of these requests, and were able to fill 4,441 (77 percent of the requests that they received). These requests comprised 74 percent of all CT requests filled.

Fee-for-service centers filled 1,546 out of 1,901 requested (81 percent). The 1,546 comprised 23 percent of all CT requests filled.

RECOMMENDATIONS

This report raises a number of concerns about donor center costs and performance. Most importantly, we found that centers paid on a contract basis are more expensive to the program, primarily because payments to these contract centers includes additional funding for overhead. Had this higher expense also led to higher performance, it would be possible to justify the additional costs. However, we found the opposite to be true: contract centers' performance actually was lower than that of fee-for-service centers based on three of the four performance measures we developed.

We base our recommendations on the underlying premise that payment levels and methods should support those activities that produce the desired results. In the case of donor centers, we believe that payment policies should support recruitment and retention, the activities that deliver the product this program is designed to effectuate--bone marrow donors.

THE HEALTH RESOURCES AND SERVICES ADMINISTRATION AND THE NATIONAL MARROW DONOR PROGRAM SHOULD REEXAMINE THE METHOD USED TO FINANCE DONOR CENTERS. The goal of this reexamination should be development and implementation of a financing approach containing incentives that encourage an efficient and effective donor center system. Such a system should emphasize recruitment and retention of donors, and it should place particular emphasis on donors from racial and ethnic minority groups.

We offer two options for consideration. We encourage HRSA and NMDP to examine and evaluate other options that would achieve the goals we cite above.

The program could move to a fee-for-service payment schedule for all centers, with incentives built in to reward centers with high retention. Such an approach could build on the system currently in place, with the important addition of a mechanism that encourages high levels of donor retention.

The program could consider a bid system. Each donor center would bid for and negotiate a competitive price which it would be paid for recruiting donors to the registry and for producing donors in response to requests for donation. Any such approach would also contain performance standards that the center would be required to achieve.

We recognize that any such effort will take some time to develop, and we urge the NMDP and HRSA to commence its development immediately. Therefore, in addition to revising the payment system, we believe that the following short term actions should be undertaken:

HRSA SHOULD REPLICATE THE ANALYSIS CONDUCTED IN THIS REPORT, OR A SIMILAR FINANCIAL ANALYSIS, AT THE CLOSE OF EACH FISCAL YEAR. We analyzed data for the first year of the contract with HRSA. It should be relatively easy for HRSA to replicate this analysis using cost, donor list, and retention data from subsequent contract years to

determine if the patterns we identified in this report continue. We encourage HRSA to conduct this analysis retroactively for the fiscal year ending April 30, 1996, and in future years. We believe that monitoring these costs is one important way to establish a baseline against which future changes can be measured. Monitoring also should provide information that will be useful for continuous quality improvement purposes.

HRSA AND NMDP SHOULD DEVELOP PROCEDURES FOR CONDUCTING A PERFORMANCE AUDIT OF DONOR CENTERS AND A PLAN FOR IMPLEMENTING PERFORMANCE AUDITS THROUGHOUT THE NETWORK. The plan for conducting and implementing these audits should be in place so that the audits, where necessary, can be carried out within the first year of the forthcoming contract. In the course of our review we found that some centers had high costs on all measures at which we looked. We believe that the contractor should determine if these centers continue to show these high costs, using a framework that is developed in consultation with HRSA. We urge the contractor to review these centers' operations closely to determine whether the amount of money paid to them is yielding the results desired, in terms of the number of donors on their list, their retention rate, and their performance on minority recruitment. To help ensure cost efficiency and effectiveness within the registry, we believe that arrangements for these audits should be in place as quickly as possible within the new contract period.

HRSA SHOULD COLLABORATE WITH NMDP TO DEVELOP EFFICIENCY MEASURES AND PROCEDURES FOR REQUIRING CENTERS TO MEET THESE MEASURES. THESE MEASURES AND PROCEDURES SHOULD BE IMPLEMENTED WITHIN THE FIRST YEAR OF THE FORTHCOMING CONTRACT. We believe that the contractor should continue to focus on continually improving the operation of this program. The contractor already has in place some performance indicators around donor registration and donor retention. One option that the contractor might consider as it seeks efficiency in the program is linking ongoing funding to the efficiency and effectiveness of donor centers. We believe that simple indicators of efficiency and effectiveness, such as those we used here or others, are readily available. We also believe that, if HRSA is to hold the contractor accountable for performance and if the contractor is to hold the donor centers accountable for performance, any such measures must be in place as early as possible within the forthcoming contract period.

COMMENTS ON THE DRAFT REPORT

We sought comments on the draft report from the Health Resources and Services Administration (HRSA), the Assistant Secretary for Planning and Evaluation (ASPE), and the Assistant Secretary for Health (ASH). In addition, HRSA sought comments on the report from the National Marrow Donor Program (NMDP). They made similar comments about the substance of our recommendations, and our response to their comments reflects that similarity.

HRSA agrees with the need to reexamine the financing method, but raises a number of points about the complexity of such an analysis. We recognize that options other than those presented in the draft report may be appropriate. We encourage HRSA and NMDP to consider any other approaches that may be worthwhile. Our bottom line is that the financing system should contain incentives that encourage an efficient and effective donor center system, with respect to recruitment and retention of donors, and with particular emphasis on donors from racial and ethnic minority groups.

HRSA and NMDP cite a number of additional factors that should be considered in developing a multivariate analysis model that would provide additional information on financing donor centers. In essence, the agency and the NMDP are saying that the issue is more complicated than we present. Clearly, a multivariate model would shed further light on factors that might be considered in developing a payment system. Toward that end, we are pleased to learn that NMDP is now consolidating multiple data sets, which should enable the organization to better understand these factors and their contribution. Certainly, a reexamination of the financing system will require that HRSA and the contractor consider all important aspects of the system.

HRSA and NMDP generally agree with our other recommendations, although they suggest some revisions in them. We adopt the proposed changes, but now we recommend that they be implemented within the first year of the new contract. We believe that such a time frame is adequate to achieve these changes, and that HRSA and NMDP should focus on reforming the current financing system as quickly as is feasible.

HRSA and NMDP raise a technical question about the amount paid in FY 1995 to contract and fee-for-service centers. We revised Appendix B (Methodological Notes) to explain how we derived our figures, based on data provided by NMDP. We continue to believe that the figures used in our draft report are appropriate for the analysis we performed.

ASH and ASPE provided no comments on this report.

APPENDIX A

DETAILED PAYMENT and RETENTION DATA

Table 1					
Payments per Donor					
	Mean	Standard Deviation	Median	Minimum	Maximum
PAYMENTS PER DONOR ON THE LIST****					
Contract Centers	\$12.74	\$3.39	\$12.89	\$ 7.73	\$ 21.46
Fee-for-service Center	\$8.89	\$4.14	\$ 9.06	\$ 3.31	\$ 24.81
PAYMENTS PER NET NEW DONOR***					
Contract Centers	\$60.28	\$42.62	\$61.63	\$15.73	\$226.08
Fee-for-service Centers	\$35.64	\$ 28.65	\$39.04	\$17.98	\$164.39
Contract centers: n = 34 (one contract center excluded from calculations because it was an extreme outlier) Fee-for-service centers: n=62 *** p < .01 **** p < .001					

Table 2					
Payments for DR Testing					
	Mean	Standard Deviation	Median	Minimum	Maximum
PAYMENTS PER DR REQUEST***					
Contract Centers	\$423	\$130	\$ 482	\$ 251	\$ 783
Fee-for-service Center	\$323	\$191	\$ 359	\$ 101	\$ 1,124
PAYMENTS PER DR REQUEST FILLED****					
Contract Centers	\$618	\$130	\$ 641	\$ 412	\$ 950
Fee-for-service Centers	\$426	\$191	\$ 451	\$ 144	\$ 1,124
Contract centers: n = 34 (one contract center excluded from calculations because it was an extreme outlier) Fee-for-service centers: n=62 *** p < .01 **** p < .001					

Table 3					
Payments for CT Testing					
	Mean	Standard Deviation	Median	Minimum	Maximum
PAYMENTS PER CT REQUEST					
Contract Centers	\$2,044	\$1,484	\$ 2,167	\$ 1,034	\$ 8,117
Fee-for-service Center	\$1,522	\$2,189	\$ 1,579	\$ 631	\$ 14,092
PAYMENTS PER CT REQUEST FILLED*					
Contract Centers	\$2,654	\$2,101	\$ 2,697	\$ 1,218	\$ 10,906
Fee-for-service Centers	\$1,871	\$2,392	\$ 1,875	\$ 728	\$ 14,092
Contract centers: n = 35					
Fee-for-service centers: n=62					
* p < .10					

Table 4					
Retention at DR and CT Testing					
	Mean	Standard Deviation	Median	Minimum	Maximum
RETENTION RATE AT DR TESTING **					
Contract Centers	68.4 %	10.9 %	74.6 %	46.9 %	92.8 %
Fee-for-service Center	75.7 %	12.4 %	81.9 %	37.8 %	100.0 %
RETENTION RATE AT CT TESTING ***					
Contract Centers	77.0 %	7.4 %	79.2 %	59.8 %	90.2 %
Fee-for-service Centers	81.3 %	13.7 %	86.5 %	33.3 %	100.0 %
Contract centers: n = 35					
Fee-for-service centers: n=62					
** p < .05					
*** p < .01					

APPENDIX B

METHODOLOGICAL NOTES

Allocation of Financial Costs

Cost-Based Contract Centers

In addition to their negotiated contract amounts, NMDP reimburses contract centers for supplies for:

DR sample Collection	\$ 10.00
Confirmatory testing	\$ 17.50
Infectious Disease tests	\$ 90.00
Research Samples	\$ 13.50
Pre-Transplant Donor Sample	\$ 13.50

Fee-for-Service Centers

These centers are paid as follows:

- File maintenance and support
\$25,000 for 1 FTE for every 20,000 donors; this is prorated, and computed monthly
- Recruitment Fees (per donor)

White	\$ 10.00
Minority	\$ 28.00
Data Entry	\$ 2.00
- Search Related Expenses

DR Sample Collection	\$ 38.00
DNA-DR contact	\$ 15.00
Confirmatory testing	\$ 100.00
Information Sessions	\$ 200.00
Physical Exam Coordination	\$ 125.00
Infectious Disease Test	\$ 130.00
Work-Up Coordination	\$ 1,500.00
Work-Up Cancellation	\$ 500.00

To arrive at a comparable measure of staff costs, we equated costs between contract centers and fee-for-service centers by deducting the supply costs paid to contract centers

where appropriate. Thus in fee-for-service centers, we determined staff related costs as follows:

DR Sample Collection	\$ 28.00 (\$38.00 minus \$10.00)
Confirmatory testing	\$ 82.50 (\$100.00 minus \$17.50)
Infectious Disease Test	\$ 40.00 (\$130.00 minus \$90.00)
Work-up Coordination	\$ 1,473.00 (\$1500 minus \$27.00 [\$13.50 for research samples and \$13.50 for pre-transplant donor samples])

We made two adjustments in the financial data originally provided to us by the NMDP after discussions with staff there. One center (Center A) had been listed as fee-for-service that actually was paid on a contractual basis. We were informed that the contract was different from the usual NMDP contract with these centers. However, we made the judgement to include this center with the contract centers because it received payments for the same types of service categories as did other contract centers. We also excluded from the fee-for-service category payments made to another center (Center B) for scientific research that was not directly related to donor center activities. We subtracted from the fee-for-service totals the payments made to Center A and the research payments made to Center B. We then added the payments made to Center A to the contract center group.

We excluded the Bill Young Marrow Donor Center from this analysis because it is part of the U.S. Navy. This center has a unique focus on recruitment of U.S. Military Personnel worldwide. Consequently, we consider issues related to operating costs to be substantially different from the other centers in the program.

We tested statistical significance by measuring the differences of the means on cost, recruitment, and retention variables, with the following formula:

$$z = (\mu_1 - \mu_2) \div \sqrt{[(s_1^2 \div n_1 - 1) + (s_2^2 \div n_2 - 1)]},$$

where μ_1 = the mean and s_1 = the standard deviation for contract centers,
and μ_2 = the mean and s_2 = the standard deviation for fee-for-service centers.

In calculating the cost per donor, per net new donor, and for DR testing, we excluded one contract center, because it was an extreme outlier and significantly skewed the means and standard deviations. This center had costs of \$619.95 per new donor, \$970 per DR request made, and \$1,869 per DR request filled.

Mail Survey

In July 1995 we mailed a survey to each of the 98 donor centers then in operation. We received responses from 88, a 90 percent response rate. Because one of those centers has since merged with another center, we chose to omit the responses of that center from our analysis. We also do not include responses from the Bill Young Center in these tables. In this report, we draw on the questions appearing on the following pages:

	Cost-Based Contract	Fee-for-Service Reimbursement
Please check the method that NMDP uses to finance your donor center:	30	56

	Contract		Fee-For-Service	
	Yes	No	Yes	No
Does your center's parent institution provide direct financial support for the following activities?				
Staff (e.g., center director's salary)	11 (37%)	19	47 (84%)	9
Physical plant (e.g., space)	18 (60%)	12	48 (86%)	8
Administrative support (e.g., secretarial, accounting)	14 (47%)	16	46 (82%)	10
Laboratory services (e.g., blood typing)	14 (47%)	16	34 (61%)	22
Other services (please describe)	10		17	

Source: OIG/OEI Survey of Marrow Donor Centers, July 1995
 Non-response to these questions was coded as "No." No response to these questions was received from one contract centers and 2 fee for service centers

Contract Centers	For those activities that your parent institution supports, how does the amount of support provided in the current fiscal year compare with the <i>prior fiscal year</i> ?			Do you anticipate that funding will increase, decrease, or stay the same for these activities over the <i>next fiscal year</i> ?		
	Increase	Decrease	Same	Increase	Decrease	Same
Staff	8 (40%)	0	12 (60%)	5 (25%)	2 (10%)	13 (65%)
Physical plant	7 (30%)	1 (4%)	15 (65%)	7 (30%)	3 (13%)	13 (57%)
Administrative support	7 (33%)	0	14 (67%)	4 (19%)	0	17 (81%)
Laboratory services	3 (14%)	1 (5%)	17 (81%)	2 (10%)	5 (24%)	14 (67%)
Other services	6 (33%)	0	12 (67%)	3 (17%)	2 (11%)	13 (72%)
Total support	5 (26%)	0	14 (74%)	5 (26%)	2 (11%)	12 (63%)

Source: OIG/OEI Survey of Marrow Donor Centers, July 1995
 Non-response to these questions is not included in frequencies or percentages.

Fee-for-Service Centers	For those activities that your parent institution supports, how does the amount of support provided in the current fiscal year compare with the <i>prior fiscal year</i> ?			Do you anticipate that funding will increase, decrease, or stay the same for these activities over the <i>next fiscal year</i> ?		
	Increase	Decrease	Same	Increase	Decrease	Same
Staff	14 (29%)	5 (10%)	30 (61%)	10 (20%)	6 (12%)	33 (67%)
Physical plant	6 (13%)	3 (6%)	38 (81%)	4 (9%)	1 (2%)	42 (89%)
Administrative support	11 (23%)	2 (4%)	35 (73%)	8 (16%)	3 (6%)	38 (78%)
Laboratory services	9 (22%)	5 (12%)	27 (66%)	5 (12%)	4 (10%)	32 (78%)
Other services	6 (19%)	1 (3%)	24 (77%)	6 (16%)	1 (3%)	31 (82%)
Total support	13 (31%)	2 (5%)	27 (64%)	12 (27%)	4 (9%)	28 (64%)

Source: OIG/OEI Survey of Marrow Donor Centers, July 1995
 Non-response to these questions is not included in frequencies or percentages.

APPENDIX C

TEXT OF COMMENTS ON THE DRAFT REPORT

Health Resources and Services Administration	C-2
National Marrow Donor Program	C-6

Note: The Health Resources and Services Administration and the National Marrow Donor Program provide combined comments on four draft reports that examined the National Marrow Donor Program. This appendix includes only those portions of their comments that are relevant to the report entitled "National Marrow Donor Program: Financing Donor Centers."



OCT 23 1995

Health Resources and
Services Administration
Rockville MD 20857

TO: Inspector General, DHHS

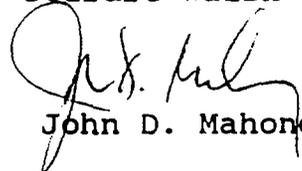
FROM: Deputy Administrator

SUBJECT: Office of Inspector General (OIG) Draft Reports,
"National Marrow Donor Program (NMDP):
1) Financing Donor Centers OEI-01-95-00123
2) Progress in Minority Recruitment OEI-01-95-00120
3) Geographic Overlap Among Donor Centers
OEI-01-95-00122
4) Effectiveness in Retaining Donors OEI-01-95-00121"

Attached is HRSA's response to your memorandum requesting comments on the four subject draft reports.

We appreciate the OIG conducting the review, "Bone Marrow Program Inspection." The draft reports were forwarded to the NMDP for comment. Their comments have been incorporated into our response. HRSA and NMDP will be performing further analysis and examination regarding some issues, such as restructuring of donor centers, implementation of performance indicators, and specification of retention rates, before specific changes are made. HRSA plans to utilize the findings and recommendations contained in these reports as an integral part of the development of the contract.

Questions may be referred to Deirdre Walsh on x35181.


John D. Mahoney

Attachment

Specific Comments on OIG Recommendations

OIG Report: Financing Donor Centers OEI-01-95-00123

OIG RECOMMENDATION: We recommend that the National Marrow Donor Program and the Health Resources and Services Administration reexamine the method used to finance donor centers.

We recommend two options for consideration. These approaches could alleviate the problems identified in this report.

First, the program could move to a fee-for-service payment schedule for all centers, with incentives built in to reward centers with high retention. Such an approach could build on the system currently in place, with the important addition of a mechanism that encourages high levels of donor retention.

Second, the program could consider a bid system. Each donor center would bid for and negotiate a competitive price which it would be paid for recruiting donors to the registry and for producing donors in response to requests for donation. Any such approach would also contain performance standards that the center would be required to achieve.

We recognize that any such effort will take some time to develop, and we urge the NMDP and HRSA to commence its development immediately. Therefore, in addition to revising the payment system, we believe that the following short term actions should be undertaken.

- Replicate this analysis at the close of the fiscal year ending April 30, 1996.
- Conduct a performance audit of centers that show continually high costs and low performance.
- Require centers to meet efficiency measures, such as those we used here, and minimum effectiveness standards, such as retention rates or minority recruitment levels.

HRSA RESPONSE

HRSA agrees that there is a need to review financing methods, reduce the number of centers, pay attention to cost containment, and reduce overhead costs. A careful examination of costs for contract versus fee-for-service centers needs to take into consideration the complexity of this topic. Additional factors, such as age of centers, size of donor files, proactive versus reactive recruitment strategies, association with recruitment groups, and variability in overhead costs among contract centers need to be taken into consideration in the analysis of fee-for-service versus cost reimbursement contracts. Other factors affecting costs need to be considered in a multivariate analysis

before concluding that the method of reimbursement is solely responsible for the differences in costs.

Furthermore, cost contracts may require that resources be devoted to the creation of standard operating procedures and more elaborate auditing practices for government contract compliance. In addition, a number of the fee-for-service centers had a portion of their expense covered by their parent organizations, a situation that may not continue given financial challenges facing blood centers. Notwithstanding these concerns, HRSA recognizes that the type of reimbursement has an important impact on costs.

In addition, an examination of the payment schedules should not be limited to recruitment and retention. The number of transplants, properly typing donors, recruiting minority donors, completing search processes promptly, and containing costs are also important performance concerns.

HRSA agrees that future reimbursement should be based upon performance criteria. Explicitly defining such criteria for donor centers will be difficult in light of the varied practices and the variability inherent in recruiting and retaining volunteer donors.

NMDP stated that the dual reimbursement system was implemented at the behest of the National Heart, Lung, and Blood Institute. Since it was implemented, discussions regarding whether it represents an optimal system have been ongoing. There was concern that the conclusions reached about performance of contract versus fee-for-service centers did not take into account many differences between the two types of centers. A comparison of costs for contract centers versus fee-for service centers may oversimplify a very complex topic and numerous factors need to be considered in a multivariate analysis before concluding that the method of reimbursement is responsible for the differences in costs. These factors include the age of the donor file, the proportion of minority donors and whether recruitment is passive or proactive.

The NMDP staff has recently collected new information about donor center-specific cost effectiveness by consolidating data obtained from Continuous Process Improvement indicators and the Search Tracking and Registry system. When complete, this analysis should provide additional information to make decisions regarding financing of donor centers.

HRSA agrees that reexamining the method used to finance donor centers and the configuration of the network will take some time. Since the financing mechanism is only one of the issues (others being geographic overlap, minority recruitment, retention, and donor center stability), it would be preferable to emphasize the

re-examination aspect of the recommendation rather than the sole goal of revising the payment system.

HRSA agrees that the analysis conducted by the OIG ought to be replicated, but does not concur with the requirement that this analysis be replicated April 30, 1996. HRSA suggests that the OIG conduct the analysis at the close of the fiscal year ending April 30, 1997 or 1998 to allow NMDP sufficient time to implement changes. There is simply insufficient time for any changes to have taken place. HRSA is considering conducting this analysis at the close of the fiscal year ending April 30, 1997 or 1998 to allow the contractor sufficient time to implement changes.

HRSA concurs that a performance audit might be advisable. HRSA and the contractor will develop procedures for conducting a performance audit of donor centers and a plan for implementing performance audits throughout the network during the next contract period, beginning May, 1997. HRSA recommends the following modification:

HRSA and the contractor should develop procedures for conducting a performance audit of donor centers and a plan for implementing performance audits throughout the network.

HRSA agrees that reviewing efficiency and effectiveness of donor centers is important, but HRSA, the contractor, and the donor centers need to reach a consensus on these measures and methods to implement them. Therefore, HRSA suggests the following modification:

We recommend that HRSA collaborate with the contractor to develop efficiency measures and procedures for requiring centers to meet them.

TECHNICAL COMMENTS

NMDP notes that the actual amount paid to contract centers for work performed during FY '95 was \$10.5 million, not \$11.8 million as stated and that the amount paid to fee-for-service centers was \$2.7 million, not \$2.9 million.



National Marrow
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Claude Lenfant, M.D.

A collaborative effort of the

American Association
of Blood Banks

American Red Cross

Council of Community
Blood Centers

With funding from:
Health Resources and Services
Administration and
Naval Medical Research and
Development Command

September 4, 1996

Judith Braslow
Director, Division of Organ Transplantation
Health Resources and Services Administration
Park Lawn Building
5600 Fishers Lane - Room 729
Rockville, MD 20857

Dear Ms. Braslow:

Thank you very much for providing the National Marrow Donor Program® (NMDP) with an opportunity to review the draft reports of the Office of Inspector General (OIG), Department of Health and Human Services. The draft reports were sent to members of the Minority Affairs, Membership and Process Improvement, Donor Recruitment and Executive Committees as well as the NMDP's Network Evaluation Advisory Panel and selected members of the staff.

The comments received have been collated and a synthesis of the responses is presented below. The intent of the NMDP is not to criticize the draft reports, but rather to add information from a variety of respondents, all of whom have been involved with aspects of donor center operations and/or donor recruitment. As you know the NMDP is well along in its own analysis of donor center functions, the findings of which should provide further useful recommendations.

Following the summary of comments on each draft report we have provided our own list of recommendations for modification of the OIG document.

Financing Donor Centers

You should be aware that the actual amount paid to contract centers for work performed during our fiscal year, 1995 was \$10.5 million, not \$11.8 million as stated. Similarly, the amount paid to the fee-for-service donor centers during the same period was \$2.7 million not \$2.9 million.

Since the implementation several years ago of a dual reimbursement mechanism, at the behest of the National Heart, Lung, and Blood Institute, discussions regarding whether this represents an optimal system have been ongoing. Responses to the OIG draft report on "Financing Donor Centers" included concerns about factors that were not included in the analysis of fee-for-service versus contract center performance. Specific factors felt to be important, but not included are age of the center, size of the donor file, proactive (felt to be more costly) versus reactive recruitment strategies, association (or lack thereof) with recruitment groups and variability in overhead costs among the contract centers. Several respondents indicated that they thought minority recruitment was more costly because it frequently involved a larger component of community-based education which did not immediately translate into volunteers recruited (but would likely yield long-term recruitment benefits). It was noted that with cost contracts came extra expenses in the form of resources devoted to the creation of standard operating procedures and more elaborate auditing practices necessary for government contract compliance.

It was also mentioned on several occasions that a number of the fee-for-service centers had a portion of their expenses covered by their parent organizations. And while it was felt that this commitment was stable in the immediate term, there was uncertainty for the future of fee-for-service centers based upon the financial challenges to blood centers.

In summary, there was concern that the conclusions reached about performance of contract versus fee-for-service centers were based upon an "apples and oranges" comparison because of the many differences not taken into account when comparing the two types of centers. There was agreement with the draft report regarding the concept of future reimbursement based upon performance criteria, although it was recognized that explicitly defining such criteria for donor centers would be difficult in light of the varied practices and the variability inherent in recruiting and retaining volunteer donors.

The NMDP staff has recently collected new information about donor center-specific cost effectiveness by consolidating data obtained from continuous process improvement indicators and the Search Tracking and Registry system. When complete, this analysis should provide a more rational basis for financial support of donor centers.

Recommended Modifications to the Draft Report:

- The report should make clear that a comparison of costs for contract centers versus fee-for-service centers may oversimplify a very complex topic in that numerous other factors affecting costs need to be considered in a multivariate analysis before concluding that the method of reimbursement is responsible for the differences in costs. These factors include (among others) the age of the donor file (the earlier recruited, the lower the retention), the proportion of minority donors (higher costs), and whether recruitment is proactive or passive.

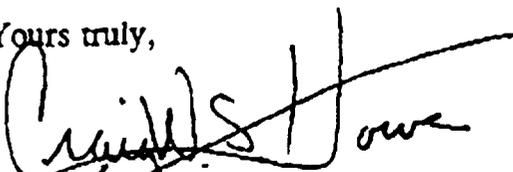
- If it proves to be true that fee-for-service is more cost effective, this may result from the fact that fee-for-service centers receive additional financial support from their parent organizations—a situation unlikely to continue in these days of cost constraints.

We are already embarked upon continuing the efforts begun with these OIG draft reports. Our own detailed evaluation of costs to recruit donors and retrieve them for donation is well under way. The effects of geographic overlap are being evaluated by our Network Evaluation Advisory Panel and by several committees. Minority recruitment approaches and donor retention are areas of high concern, being addressed by our Minority Affairs Committee, the Donor Recruitment Committee, and the Membership and Process Improvement Committee.

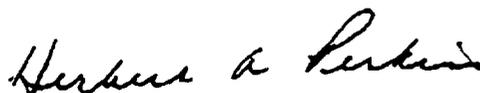
These are all high priority items for our Board of Directors, which will be reviewing these documents at its regular meeting in several weeks.

We hope that you find these comments helpful. The NMDP thanks you for sharing these draft reports and looks forward to a continuing collaboration in improving all aspects of donor center and recruitment group operations.

Yours truly,



Craig W. S. Howe, M.D., Ph.D.
Chief Executive Officer



Herbert A. Perkins, M.D.
NMDP Board Chair

APPENDIX D

ENDNOTES

1. National Marrow Donor Program, *The Living Gift of Life*.
2. *Bone Marrow Transplants - A Book of Basics for Patients* (reprinted by NYSErnet, Inc. with permission from BMT newsletter), chapter 4, pp. 35-36.
3. 42 U.S.C. §274k(b)(1)-(7)
4. In addition to their negotiated contract amounts, NMDP reimburses contract centers for supplies for:

DR sample Collection	\$ 10.00
Confirmatory Typing	\$ 17.50
Infectious Disease tests	\$ 90.00
Research Samples	\$ 13.50
Pre-Transplant Donor Sample	\$ 13.50.
5. The NMDP reimburses fee-for-service centers for search related expenses as follows:

DR Sample Collection	\$ 38.00
DNA-DR contact	\$ 15.00
Confirmatory Typing	\$ 100.00
Information Sessions	\$ 200.00
Physical Exam Coordination	\$ 125.00
Infectious Disease Test	\$ 130.00
Work-Up Coordination	\$ 1,500.00
Work-Up Cancellation	\$ 500.00.
6. Eighty-six percent of fee-for-service centers reported that their parent institution provides financial support for space (vs. 60 percent of contract centers); 82 percent for administrative support vs. 47 percent), and 61 percent for laboratory services (vs. 47 percent).
7. Excluding the U.S. Navy's Bill Young Marrow Donor Center.