Department of Health and Human Services

OFFICE OF INSPECTOR GENERAL

NATIONAL MARROW DONOR PROGRAM

GEOGRAPHIC OVERLAP AMONG DONOR CENTERS

JUNE GIBBS BROWN
Inspector General

DECEMBER 1996

OEI-01-95-00122

OFFICE OF INSPECTOR GENERAL

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EXECUTIVE SUMMARY

PURPOSE

To provide a preliminary assessment of the extent of overlap among donor centers participating in the National Marrow Donor Program.

BACKGROUND

Bone marrow transplantation is a treatment for blood borne diseases such as leukemia and lymphoma. For a transplant to be successful, the patient's and donor's blood cell proteins, or human leukocyte antigens (HLA), must match as closely as possible.

The National Marrow Donor Program (NMDP) is a nonprofit organization based in Minneapolis, Minnesota that finds matching donors for patients seeking a transplant. The NMDP operates the congressionally authorized marrow donor registry under contract with the Health Resources and Services Administration (HRSA). The NMDP accredits donor centers that recruit volunteers to join the registry, which contains almost 1.5 million potential donors in 97 domestic donor centers.

Staff at HRSA asked us to assess the extent to which donor center service areas overlap. This report responds to that request.

This report is based on 88 responses to a mail survey of the domestic centers; analysis of service area information provided in the NMDP's *Donor Center Access Directory* and U.S. census data; and site visits to nine donors centers across the country.

FINDINGS

Fifty-seven of the 88 donor centers responding to our survey report that more than one donor center operates in their area.

Forty-eight of these 57 centers say that their geographic service areas overlap.

Forty-three centers say that their target populations overlap.

Our population-based analysis of all donor centers' descriptions of their service areas reveals even greater geographic overlap than donor centers reported in responses to our survey.

The service areas of 24 of 96 donor centers are covered in full by at least 1 other center.

For 54 donor centers, more than half of their population live in an area served by at least one other center.

The extent of service area overlap appears to have little, if any, impact on donor centers' performance as measured by:

Rate of growth in donor list.

Cost per new donor on the list.

Donor retention at first stage followup (DR) testing.

Donor retention at second stage followup (CT) testing.

CONCLUSION

Our report identifies a substantial degree of overlap among donor centers. However, our analysis does not reveal any negative impact on center performance arising from that overlap. To be sure, there appears to be some competition between donor centers serving the same area. Such competition, however, may be beneficial.

On the other hand, some of our respondents raised concerns about inefficiencies and confusion resulting from overlap. The NMDP, working with HRSA, is looking at options for restructuring the configuration of the donor center network, including consolidation of donor centers at the local level as one way of reducing overhead costs. The substantial degree of geographic overlap that we found among donor centers indicates that such a restructuring could be accomplished without disrupting the geographic service areas that are currently covered in most regions of the country.

COMMENTS ON THE DRAFT REPORT

We received comments from HRSA and the NMDP. They offer the general comment that this report oversimplifies a complicated issue. We agree that this is a complex issue, but we also note this report is intended only as a first look at the issue of overlap. Our analysis is based on county-level depictions of each donor center's service area, as provided by NMDP. By any definition, the county is a broad unit of analysis. We agree that, should HRSA and NMDP proceed to consider these issues in their evaluation of the donor center network, a more precise targeting of each center's true service area would be needed.

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INTRODUCTION

PURPOSE:

To provide a preliminary assessment of the extent of overlap among donor centers participating 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 leukemia 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 has 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 to HRSA in recognition that NMDP was a service delivery program, rather than a basic research initiative.

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.

In some areas of the country several donor centers cover similar territory. Staff at HRSA asked us to assess the extent of overlaps in these service areas. This report responds to that request.

SCOPE and METHODOLOGY

This report addresses the domestic donor centers only. The 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: Financing Donor Centers* (OEI-01-95-00123).

This report is based on four primary data sources:

1) A mail survey of the 97 domestic donor centers. We received 88 responses, a response rate of 91 percent.

2) 1990 U.S. Census Data at a county level.

3) The NMDP's Donor Center Access Directory, in which each donor center displays a map of the geographic area that it covers.

4) Site visits to donors 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

FIFTY-SEVEN (65 PERCENT) OF THE 88 DONOR CENTERS RESPONDING TO OUR SURVEY REPORT THAT MORE THAN ONE DONOR CENTER OPERATES IN THEIR AREA.

- ***Forty-eight (84 percent) of these 57 centers say that their geographic service areas overlap.***

- ***Forty-three (75 percent) say that their target populations overlap.***

In their responses to our survey:

- Twelve donor centers indicated that four other centers operate in their area. Three of these centers are affiliated with the American Red Cross, five with independent blood banks, two are hospital based programs, and two are free-standing centers--one private and one the U.S. Navy's Bill Young Marrow Donor Center. Two of these donor centers characterized their relationship as competitive with two of the four other centers operating in their area, and two centers said it was competitive with one other center.

- Twelve centers said that three other donor centers operate in their area. Three are affiliated with the Red Cross, five with blood banks, three are hospital-based, and one is free standing. Two of these centers said that their relationship was competitive with all three; two said it was competitive with two of the centers, and three said it was competitive with one center.

- Fourteen centers reported that two other centers operate in their area. Four centers said relationship was competitive with both, and five said it was competitive with one.

- Nineteen centers reported that one other center operates in their service area. Seven centers said the relationship was competitive.

OUR POPULATION-BASED ANALYSIS OF ALL DONOR CENTERS' DESCRIPTIONS OF THEIR SERVICE AREAS REVEALS EVEN GREATER GEOGRAPHIC OVERLAP THAN DONOR CENTERS REPORTED IN RESPONSES TO OUR SURVEY.

- ***The service areas of 24 of 96 donor centers are covered in full by at least one other center.***

- ***For 54 donor centers, more than half of their population lives in an area served by at least one other center.***

We matched county-level census data from 1990 with donor centers' self-defined service areas. This provides an objective measure of the "Service Area Overlap," which we define as:

The percentage of the population in a donor center's service area that is also served by at least one other center.

An overlapping service area does not mean that the service areas of two centers are identical. Rather, it means that a particular donor center might overlap in one part of is service area with one center, in another part of its area with a second center, and perhaps in another part of its service area with yet a third center.

Appendix A provides a center-by-center breakdown of the extent of service area overlap.

Service area overlap is most extensive in a few States:

- California, where 8 of 11 centers overlap 100 percent, and 1 center overlaps more than 90 percent;
- Texas, where 4 of 9 donor centers overlap 100 percent, and 1 more overlaps more than 90 percent;
- Maryland/Washington D.C., where 2 of 4 donor centers overlap 100 percent, and 2 others overlap more than 90 percent;
- New England, where all 4 donor centers serving the 6 states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) overlap 100 percent;
- Idaho, where 2 donor centers based there and others from Utah and Washington lead to 100 percent overlap for the Idaho centers.
- Illinois, where two of four donor centers have 100 percent overlap, and another two more have greater than 75 percent overlap.

THE EXTENT OF SERVICE AREA OVERLAP APPEARS TO HAVE LITTLE, IF ANY, IMPACT ON CENTERS' DONOR RECRUITMENT OR DONOR RETENTION PERFORMANCE.

We examined four effectiveness measures to make an assessment of the impact associated with geographic overlap. Two effectiveness measures relate to recruitment of new donors, and two measures address donor retention. We grouped centers into 6 categories, defined by the extent of geographic overlap. We created groups comprised of the centers at either extreme--100 percent overlap and no overlap. We then assigned the other centers to quartiles based on the degree of overlap.

Recruitment Effectiveness Measures:

Rate of growth in donor list. If competition among donor centers operating in the same area were a concern, it would manifest itself in donor recruitment. Between October 1, 1994 and September 30, 1995, the domestic registry[3] grew from 1,069,144 to 1,340,941 donors. As Table 1 shows, the increases within each group of centers cluster around the overall mean of 25 percent. The smallest increase--20 percent--occurred among centers with overlap between 75 and 99.9 percent. At the extremes, those centers with no overlapping service areas had a 27 percent growth, while those whose service areas overlapped completely averaged 28 percent growth.

Table 1
Service Area Overlap and Donor Recruitment

Extent of Service Area Overlap	Number of Centers		Mean Increase in Donor List [Range]	Mean Cost per New Donor [Range]
	Fee for service	Contract		
100 %	13	10	28 % [4-50%]	$52.28 [$20.38-$226.08]
75 % - 99.9 %	9	4	20 % [8-64%]	$75.06 [21.73-$164.93]
50 % - 74.9 %	11	5	29 % [7-78%]	$44.12 [$22.48-$87.98]
25 % - 49.9 %	12	4	29 % [13-49%]	$50.75 [$22.68-$73.83]
0.1 % - 24.9%	11	9	23 % [0-40%]	$55.53 [$19.69-$134.05]
0 %	4	1	27 % [10-71%]	$39.59 [31.78-$63.45]
All Centers	60	33	25 %	$54.41

Excludes U.S. Navy's Bill Young Marrow Donor Center because of that center's unique focus on military personnel worldwide; also excludes 1 contract center that was extreme outlier in mean cost per new donor.

List size: n= 1,340,941 (September 30, 1995)
n= 1,069,144 (September 30, 1994)
cost per new donor calculated from May 1, 1994 through April 30, 1995
Data source: NMDP Registry Statistics, October 1995 and October 1994 Analysis: OIG/OEI

Cost per new donor. We present the mean cost per new donor added to the list for the year ending April 30, 1995, to provide a preliminary assessment of the cost impact of service area overlap. As Table 1 shows, five of the groups are quite close in the mean cost per donor, between $39 and $56. One group, however--those with overlap between 75 and 99 percent--show higher mean costs. These cost data should be treated with some caution. In our companion report, *National Marrow Donor Program: Financing Donor Centers* (OEI-01-95-00123), we find that centers paid on contract receive higher payments

from the NMDP than do those paid on a fee-for-service basis. The current analysis does not factor in this important difference payment mechanism; table 1, however, does present data on the number of centers paid under each mechanism.

Retention Effectiveness Measures: The NMDP identifies four reasons that an individual may not come forward for further testing at either first level followup testing (DR) or second level followup testing (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. Donor centers received over 17,000 requests for DR testing in the 6-month period between April 1 and September 30, 1995, of which they filled 12,503 (72 percent). The lowest DR retention rates--63 percent--occurred in those centers where there is no service area overlap, and the highest rate--78 percent--in the centers with less than 25 percent overlap.

Retention at CT testing. Donor centers received over 4,500 requests for CT testing in the six-month period between April 1 and September 30, 1995, of which they filled 3,422 (76 percent). The CT retention rates within each group of centers cluster closely around that mean, ranging from 71 to 80 percent.

Table 2
Service Area Overlap and Donor Retention

Extent of Service Area Overlap	Number of Centers	Mean Retention at DR Testing [Range]	Mean Retention at CT Testing [Range]
100 %	23	72 % [49-100%]	74 % [43-100%]
75 % - 99.9 %	13	65 % [53-100%]	71 % [54-100%]
50 % - 74.9 %	18	75 % [61-98%]	78 % [54-100%]
25 % - 49.9 %	16	75 % [61-100%]	80 % [68-100%]
0.1 % - 24.9%	20	78 % [58-93%]	78 % [67-100%]
0 %	6	63 % [47-85%]	78 % [59-100%]
All Centers	96	72 %	76 %

Excludes U.S. Navy's Bill Young Marrow Donor Center because of that center's unique focus on military personnel worldwide.

DR Requests Resolved between April 1 - September 30, 1995 = 17,333
CT Requests Resolved between April 1 - September 30, 1995 = 4,515
Data source: NMDP Registry Statistics, October 1995 and October 1994 — Analysis: OIG/OEI

Donor centers operating in the same area frequently collaborate in their work. For example, 51 percent of centers in overlapping areas report that they routinely share information about recruitment drives with other local centers, and 38 percent report that they hold drives in conjunction with these other centers. Although 70 percent of these centers report informal understandings with the other donor centers, however, only 5 percent report any written agreements with other donor centers about how to focus their efforts.

Importantly, the reimbursement system may have a significant effect on the extent to which donor centers would hold drives together. Sixty-two donor centers are reimbursed by NMDP on a fee-for-service basis.[4] These centers receive a fixed amount for each donor they recruit ($10 for each Caucasian, $28 for each person from a racial or ethnic minority). Because these recruitment fees are the financial base of any fee-for-service donor center, the incentive to be the sole sponsor of a drive is very strong.

In our survey and site visits, some donor center staff did identify potential inefficiencies and confusion that can arise from multiple donor centers in the same area. Donor centers raised two types of concerns that can arise from multiple donor centers in the same geographic area: duplication of costs and confusion among donors. The director of one donor center captured this concern when she told us, "A hospital here has a marrow donor center, but it is also our chief customer for whole blood. We serve identical patient populations--we even have a blood center facility inside that hospital. Having two donor centers that service the same patients is an expensive duplication of effort and creates extensive confusion in the community."

Concerns about duplication were most evident where a new center has been established in an area served by an existing center. At several donor centers we saw evidence of possessiveness (*e.g.*, comments about *our* donors). The comments from the director of one donor center is illustrative of how strongly these feelings run. "The NMDP recently approved a new program where we already have a satellite office. The new one is very small--less than 1,000 donors. So that center thinks that we should hand them all our donors in that area--not just new ones, but those that we already recruited."

CONCLUSIONS

Our report identifies a substantial degree of overlap among donor centers. Responses to our survey of donor centers, as well as our separate population-based analysis, reveal geographic overlap; our survey responses also show that donor center directors believe that their target populations overlap.

However, our analysis does not reveal any negative impact on center performance arising from that overlap. To be sure, there appears to be some competition between donor centers serving the same area. Competition in itself may be beneficial, as it may spur donor centers to work even more diligently to expand their lists. In addition, in many overlapping areas, we found donor center staff who reported a generally cooperative attitude toward their colleagues, and they frequently share information about recruitment activities.

On the other hand, some of our respondents raised concerns about potential inefficiencies and confusion resulting from overlap. Certainly, where two or more donor centers serve the same area or target the same population, the potential exists for duplication of services and subsequent duplication of costs. These costs could include administrative overhead expenses, personnel costs, and recruitment expenses, such as publicity, travel, and on-site expenses of conducting drives.

We do not make any recommendations regarding the optimal configuration of the donor center network. We understand that the NMDP, working with HRSA, is looking at options for changing the structure of that network. The substantial degree of geographic overlap that our analysis found among donor centers indicates that restructuring could well be accomplished without disrupting the geographic service areas that currently are covered in most regions of the country.

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 requested comments on the report from the National Marrow Donor Program.

HRSA and NMDP offer the general comment that this report, which did not contain recommendations for action, oversimplifies a complicated issue. We agree that this is a complex issue, but we also note that this report is intended only as a first look at the issue of overlapping service areas.

HRSA and NMDP cite concerns that the term service area overlap was not well-defined. We based this term on county-level depictions of each donor center's service area, as provided by NMDP. We recognize that this is broad unit of analysis by any definition. Should HRSA and NMDP proceed to consider these issues in their evaluation of the network configuration, a much more precise targeting of each center's true service area would be worthwhile. This targeting could be based, for example, on ZIP codes of donors on the list of each center. That information was not available to us for this analysis.

NMDP also states that the fact that some counties are served by more than one donor center is ignored in reaching conclusions about the percentage of population served. Our report nowhere makes a statement about the percentage of population served, but our analysis directly addresses the issues of counties in which more than one donor center operates.

The ASPE and ASH responded that they had no comments on this report.

APPENDIX A

EXTENT OF SERVICE AREA OVERLAP

The following table presents the service area overlap for each donor center.

The acronym ARC stands for American Red Cross.

The city provided is the headquarters office of each donor center. Some centers have additional satellite offices in other cities.

The Service Area Population was obtained using county-level U.S. Census data from 1990, combined with the service area defined by each donor center in the NMDP's *Donor Center Access Directory*, published in October, 1995.

The number of donors on each center's list was obtained from the NMDP's Monthly Registry Statistics for October, 1995.

Center Number	Center	City	State	Service Area Population	Percent Overlap	Donors on Center's List (October, 1995)
1	ARC St. Paul	St. Paul	MN	5,105,798	11%	18,716
2	ARC Los Angeles	Los Angeles	CA	12,529,506	98%	79,823
3	ARC South Carolina	Columbia	SC	3,486,703	33%	11,737
4	Stanford University Blood Bank	Palo Alto	CA	2,147,200	100%	8,524
5	Sacramento Medical Foundation	Sacramento	CA	4,709,359	100%	22,496
6	Blood Bank of San Bernardino	San Bernardino	CA	2,588,793	100%	9,566
7	San Diego Blood Bank	San Diego	CA	3,777,732	31%	24,060
8	Irwin Memorial Blood Center	San Francisco	CA	1,618,549	100%	9,031
9	ARC Northern California	San Jose	CA	2,119,668	100%	14,330
10	ARC Connecticut	Farmington	CT	12,326,600	100%	48,748
11	Civitan Blood Center	Gainesville	FL	554,759	58%	2,428
12	Fox-Ft. Lauderdale Labs	Lauderhill	FL	4,469,237	100%	15,296
13	ARC South Florida	Miami	FL	3,270,606	100%	16,109
14	Florida Blood Services	St. Petersburg	FL	2,480,192	11%	13,351
15	ARC Atlanta	Atlanta	GA	10,518,803	52%	28,045
16	ARC Heart of Illinois	Peoria	IL	3,946,270	61%	3,979
17	ARC Fort Wayne	Fort Wayne	IN	2,628,181	88%	4,916

18	Central Indiana Blood Center	Indianapolis	IN	5,544,159	42%	16,043
19	Poudre Valley Hospital	Fort Collins	CO	798,030	94%	2,554
22	Memorial Blood Center	Minneapolis	MN	1,676,784	19%	4,248
23	Johns Hopkins Medical Center	Baltimore	MD	4,270,760	92%	4,755
24	ARC Central Maryland	Baltimore	MD	3,260,823	97%	9,583
25	NIH Marrow Donor Center	Rockville	MD	4,125,640	100%	35,979
26	Dana Farber Cancer Institute	Boston	MA	8,353,605	100%	11,180
28	ARC Southeastern Michigan	Detroit	MI	4,341,223	0%	21,706
29	Grand Valley Blood Program	Grand Rapids	MI	1,981,642	55%	13,963
30	ARC Great Lakes Region	Lansing	MI	3,651,886	30%	28,384
31	Oklahoma Blood Institute	Oklahoma City	OK	1,383,650	77%	3,265
32	University of Iowa Hospitals	Iowa City	IA	3,233,026	58%	8,774
33	ARC Midwest Region	Omaha	NE	1,991,505	26%	7,868
34	ARC Greater Upstate New York	Albany	NY	1,942,024	11%	7,552
35	ARC Rochester	Rochester	NY	1,729,762	2%	7,516
36	ARC Syracuse	Syracuse	NY	1,563,868	0%	4,480
37	ARC Carolinas Region	Charlotte	NC	6,894,642	19%	62,780
38	Hoxworth Blood Center	Cincinnati	OH	1,680,402	36%	5,259
39	ARC Northern Ohio	Cleveland	OH	4,706,151	24%	16,221
40	ARC Central Ohio	Columbus	OH	3,074,462	22%	9,588
41	ARC Northwest Ohio	Toledo	OH	1,060,170	0%	2,076
42	ARC Oklahoma Region	Tulsa	OK	2,770,330	38%	5,340
43	ARC Pacific Northwest	Portland	OR	3,937,645	11%	14,719
44	ARC Johnstown	Johnstown	PA	3,410,233	56%	3,885
45	ARC Penn-Jersey Region	Philadelphia	PA	10,110,990	100%	17,544
46	Wadley Cancer Center	Dallas	TX	2,561,371	100%	23,623
48	ARC Mid-Atlantic	Norfolk	VA	3,349,752	23%	9,119
49	Spokane-Inland Empire Blood Bank	Spokane	WA	1,474,738	37%	5,727
50	ARC Badger Region	Madison	WI	3,631,770	31%	11,664
51	ARC Washington DC	Washington	DC	3,917,108	100%	10,098
52	Saginaw Valley Blood Program	Saginaw	MI	1,981,642	55%	3,560
53	Life Blood	Memphis	TN	8,485,325	64%	14,895
54	Hawaii Marrow Donor Registry	Honolulu	HI	1,108,229	0%	12,617
55	Jacksonville Donor Registry	Jacksonville	FL	1,020,450	12%	2,674

56	Central Kentucky Blood Center	Lexington	KY	1,896,480	33%	7,271
57	United Blood Services	Scottsdale	AZ	2,742,989	12%	15,105
58	Colorado Marrow Donor Program	Denver	CO	3,747,982	23%	34,325
59	University Medical Center	Tucson	AZ	1,092,232	24%	3,216
60	New York Blood Center	New York	NY	18,765,869	39%	65,982
62	United Blood Services	Albuquerque	NM	1,362,241	9%	4,630
63	LifeSource	Glenview	IL	7,039,960	84%	21,355
64	Central Florida Blood Bank	Orlando	FL	2,862,030	51%	5,224
66	Alameda-Contra Costa Medical Association	Oakland	CA	2,082,914	100%	12,279
67	City of Hope National Medical Center	Duarte	CA	14,901,137	100%	23,512
68	Peninsula Blood Bank	Burlingame	CA	649,623	100%	3,976
70	Heart of America Registry	Kansas City	MO	38,476,844	65%	88,909
74	HLA Registry Foundation	River Edge	NJ	29,964,435	95%	109,099
75	Methodist Hospital	Houston	TX	5,030,783	100%	4,623
76	Community Blood Center	Dayton	OH	1,573,020	28%	7,007
78	Virginia Blood Services	Richmond	VA	1,763,405	54%	9,046
79	St. Alphonsus Regional Medical Center	Boise	ID	841,200	100%	1,593
80	Central Blood Bank	Pittsburgh	PA	4,022,386	43%	6,308
81	Puget Sound Blood Center	Seattle	WA	4,218,015	9%	27,593
82	Blood Center of South Eastern Wisconsin	Milwaukee	WI	1,735,364	0%	22,643
83	Intermountain Marrow Donor	Salt Lake City	UT	1,912,791	9%	3,572
85	University of Louisville	Louisville	KY	2,098,501	17%	7,555
86	Stewart Regional Blood Center	Tyler	TX	895,293	100%	5,040
87	Bill Young Donor Center	Bethesda	MD	not applicable		83,873
88	Assoc. of Independent Blood Centers	West Palm Beach	FL	4,858,161	89%	990
89	Mountain States Marrow Donor Center	Boise	ID	1,053,517	100%	3,011
90	Rhode Island Blood Center	Providence	RI	1,003,464	100%	11,778
91	Gulf Coast Regional Blood Center	Houston	TX	4,504,753	100%	17,151
92	United Blood Services	Las Vegas	NV	2,419,238	63%	2,518
93	Mississippi Marrow Donor Program	Jackson	MS	2,919,679	42%	5,764
94	Baylor Research Institute	Dallas	TX	6,201,333	92%	8,262
97	Community Blood Center	Appleton	WI	280,830	49.966%	1,066

98	Leon County Blood Bank	Tallahassee	FL	1,272,857	51%	1,451
99	Northern Illinois Blood Bank	Rockford	IL	655,706	100%	1,637
100	North Jersey Blood Center	East Orange	NJ	6,217,506	100%	7,819
101	Cook-Ft. Worth Children's Medical Center	Fort Worth	TX	3,877,589	56%	20,137
102	South Texas Regional Blood Bank	San Antonio	TX	3,193,622	5%	19,091
103	United Blood Services	Chicago	IL	5,621,485	100%	8,492
105	Champaign County Blood Bank	Urbana	IL	1,446,262	77%	1,634
108	Central Texas Regional Blood	Austin	TX	874,238	21%	4,122
109	ARC Puerto Rico	San Juan	PR	3,522,037	0%	1,460
111	ARC Appalachian Regional Blood Service	Roanoke	VA	3,336,493	54%	1,191
112	Cooperative Appalachian Marrow Program	Johnson City	TN	1,624,276	80%	918
115	Blood Assurance, Inc	Chattanooga	TN	625,787	48%	1,130
116	Scott & White Clinic	Temple	TX	832,775	63%	2,004
118	ARC Blood Services Southeast	Savannah	GA	2,924,744	86%	1,568

APPENDIX B

METHODOLOGY

Determination of Service Area Overlap

We determined each donor center's service area by using the NMDP's *Donor Center Access Directory*, published in October 1995. In that directory, each donor center provided a map delineating its service area.

We used 1990 U.S. Census Data, the most recent available, at the county level. We matched these data with the counties that each center described as its service area.

If two or more centers covered a particular county, we defined the service areas as overlapping.

We calculated the percentage of service area overlap as a ratio:

- The denominator is the entire population in each donor center's service area.
- The numerator is the population in that donor center's service area that reside in counties served by one or more other donor centers.

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 overlap and donor recruitment to be substantially different from the other centers in the program.

Mail Survey

In July 1995 we mailed a survey to each of the 98 donor centers then in operation. We received responses from 89, a 91 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. In this report, we draw on the questions described on the following page.

	Yes	No
Are there other NMDP accredited donor centers operating in the same area that you serve? ***(If you answered "yes," please answer the rest of the questions on this page; if you answered "no" please go to the next page.)***	56 (64%)	32 (36%)

	Yes	No
Do you feel that your donor center's geographic service area overlaps with that of another donor center(s)?	47 (85%)	8 (15%)
Do you feel that the populations your center targets for donor recruitment overlap with those targeted by another donor center(s)?	43 (78%)	12 (22%)
Does your center routinely share information about recruitment drives with other centers?	28 (51%)	27 (49%)
Does your center hold recruitment drives in conjunction with other donor centers in your area?	21 (38%)	35 (63%)
Does your center have informal understandings with other donor centers about how each center focus its efforts?	39 (70%)	17 (30%)
Does your center have written agreements with other donor centers about how each center focus its efforts?	3 (5%)	53 (95%)

Using the following 5-point scale, please check the box that best describes your relationship with other donor centers (up to 4) in your service area.

	Cooperative 5	4	Neutral 3	2	Competitive 1
Donor Center 1	22	4	10	4	17
Donor Center 2	19	3	4	3	8
Donor Center 3	12	3	4	1	3
Donor Center 4	4	3	2	1	2

We also draw on open ended responses to the survey and on discussions and observations made during our site visits for qualitative interpretation of the data

APPENDIX C

TEXT OF COMMENTS ON THE DRAFT REPORT

Health Resources and Services Administration C-2

National Marrow Donor Program C-4

Note: The Health Resources and Services Administration and the National Marrow Donor Program provided 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: Geographic Overlap Among Donor Centers."

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Health Resources and
Services Administration
Rockville MD 20857

OCT 23 1996

TO: Inspector General, DHHS

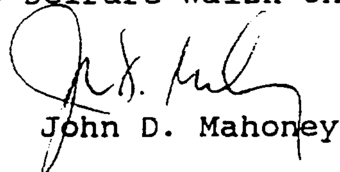
FROM: Deputy Administrator

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

OIG Report: Geographic Overlap Among Donor Centers
OEI-01-95-00122

No specific recommendations.

GENERAL COMMENTS

HRSA notes that the conclusions state that service area overlap, though substantial, appeared to have little, if any, impact on donor centers' performance as measured in this report. The report lacks an assessment of the relationship between geographic overlap and cost-efficiency of donor center operations. Geographic overlap does not have to be a problem, provided competition is not counterproductive. HRSA raised concerns in an earlier draft about inefficiencies and confusion resulting from geographic overlap among donor centers.

Bidding for territory needs further evaluation. A difference of opinion was expressed regarding the potential effects of the bidding process, particularly because of the concern that the phrase, "service area overlap," is not well defined and the analysis is an oversimplification. Modeling of various donor center configurations should take into consideration the complicated issues of geographic overlap.

National Marrow
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The Honorable C. W. "Bill" Young
John A. Hansen, M.D.
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.

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Geographic Overlap

One respondent felt that continuing the geographic overlap of donor centers would make it difficult to establish minority recruitment goals reflective of the population served by the competing centers. While possibly making centers more efficient, competition for a donor could well be counterproductive as has already been demonstrated for blood donors.

There was a difference of opinion regarding a bidding process to establish defined NMDP service areas. It was thought to be the preferable approach by one individual, but another felt that it could potentially alienate donor centers and ultimately disrupt the Program. An alternative suggestion was that of a "hub and spoke" model of recruitment and donor management.

Service area overlap was not well defined in the draft report. For example, in California it could be said that every donor center is overlapped by the Heart of America (HOA) donor center when in fact there are areas of the state not served by HOA. Another oversimplification is found in Appendix B where the fact that some counties are served by more than one donor center is ignored in reaching conclusions about the percentage of population served.

Recommended Modifications to the Draft Report:

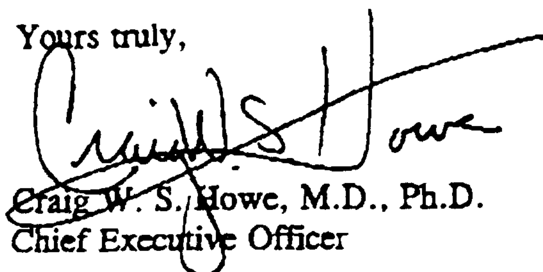
- We agree with the OIG report that geographic overlap per se does not have to be a problem, but this depends on whether the overlapping centers cooperate or compete. Blood bank experiences have shown clearly that competition for donors is counterproductive.
- Bidding for territory needs further evaluation before giving it serious consideration. It could create much ill will for the program from groups whose support we need.
- The NMDP feels that modeling of various donor center, recruitment group and distant donor satellite configurations, as a part of the Network Evaluation, will be helpful in sorting out the complicated issues of geographic overlap.

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*, October, 1994.

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. Excluding the Bill Young Donor Center.

4. The remaining centers are paid through a cost-based contract.