An Assessment of Family Medicine Residency Networks in the United States

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Abstract

Introduction Residency networks, comprising groups of residency programs organized as collaborative ventures or consortia, have existed in the United States for more than 30 years. At the same time, there have been no comparative assessments of their structures and functions.

Objectives We conducted a survey of residency networks to assess their organizational structures and activities.

Methods We identified 9 residency networks and designed a survey to specifically assess their organizational structures and activities. This survey was sent electronically to network leadership and all respective program directors in each residency network. The survey contained 6 areas of focus: (1) network history and administration; (2) network funding; (3) resource sharing and communication within the network; (4) network activities; (5) research within the network; and (6) strengths and weaknesses of the network.

Results Of the 9 networks, 5 provided data, with 32 of a possible 51 residency programs (62.8%) responding. Respondents reported predominantly functioning as affiliated networks (76.3%) rather than collaborative ventures or consortia. The networks have a variety of funding streams and share resources.

Conclusions A major function of residency networks is the sharing of resources, particularly in the area of faculty development, with 97.1% of respondents sharing faculty development resources. In addition, all residency networks were actively involved in research, and they participated in political advocacy and in enhancing the engagement of medical students. Networks have been successful at obtaining grants to support their infrastructure.

Introduction

Residency networks, comprising groups of residency programs organized as collaborative ventures or consortia, have existed in the United States for more than 30 years.[1,2] Most of the literature describes family medicine residency networks, with only 2 non–family medicine networks reported: a multispecialty network in Canada and a US pharmacy residency network.[3,4] One of the first residency network articles published in the 1970s outlined the rationale for the use of a regional residency network to "decentralize medical education and expand the role of the university regionally."[1,2] Since then, studies have described the practice patterns of residency graduates,[5–7] reported the findings of an economic analysis of residency programs in one network,[8] and described the use of an electronic mail list for another.[9] Another study outlined the impact of a multispecialty residency network's use of rural rotations on the practice locations of graduates.[3]

Although these articles represent important work from their respective time periods and institutions, to date there has been little assessment of the structures or functions of residency networks. We surveyed residency networks to assess their organizational structure and activities.

Methods

Study Population

Using a combination of search strategies, including a literature review, online searches, and discussion with national leaders in the field, we identified 9 residency networks in the United States. Because no universally accepted definition of a residency network existed, we defined a *residency network* as a group of residency programs with uniform agreement among them about their involvement in a *network*. This definition resulted in the exclusion of 3 of the 9 initial candidates from the study because they did not meet this criterion.

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Survey Design, Development, and Implementation

We developed and pilot tested the survey with a group of residency faculty, and revised it accordingly prior to final implementation. The survey contained 6 areas of focus: (1) network history and administration; (2) network funding; (3) resource sharing and communication within the network; (4) network activities; (5) research within the network; and (6) strengths and weaknesses of the network. The final survey included 34 variables and was posted on a secure website (SurveyMonkey, Palo Alto, CA). A link to the survey was embedded in an e-mail sent to all potential participants. Follow-up e-mails were sent to all nonresponding individuals in the weeks after the initial survey invitation.

We asked the following network representatives to complete the questionnaire: chairs of the medical school departments associated with the residencies; network directors, associate network directors, and residency program directors for each residency. The study was approved by the Oregon Health & Science University Institutional Review Board.

Data Analysis

Analysis included simple descriptive statistics for each item on the questionnaire. When differences existed in how respondents from the same network characterized findings, the most common response was reported.

Of the 6 networks we surveyed, 1 did not respond to our request for data. The response rate within the 5 eligible networks, representing 51 residency programs, included in the study was 64% (40 of 63). A total of 2 of the 5 department chairs (40%), all 5 network directors (100%), and 24 of the 51 residency program directors (47%) identified themselves in their responses. The remaining respondents (n = 9) were in other roles or did not identify their role.

What was known

Residency networks and consortia have existed for 30 years, yet little is known about their activities and functional attributes.

What is new

A survey of 5 networks identified common activities and functions, including resource sharing, obtaining grant support, and engaging in research and advocacy.

Limitations

Small sample, survey research, and the potential that some networks were not identified.

Bottom line

Residency networks allow programs to share resources, particularly for faculty development, and have been successful at obtaining grant funding, managing research portfolios, and enhancing the engagement of medical students.

Results

Network History and Administration

There was some variation among respondents regarding the reported number of residency programs within each network at time of inception and at the time of our survey. Network organizational structures reported by respondents are shown in the TABLE.

A variety of leadership roles were identified by respondents as existing within the networks, including network director, assistant director, elected officers/executive team (president, vice president, treasurer), and

TABLE **Reported Network Organizational Structures (n = 38)[a]**

	Network 1 (n = 15)	Network 2 (n = 5)	Network 3 (n = 8)	Network 4 (n = 6)	Network 5 (n = 4)	Mean (n = 38)
Affiliated network	80.0	100.0	87.5	66.7	25.0	76.3
Consortium	0.0	0.0	0.0	0.0	25.0	2.6
Collaborative	6.7	0.0	12.5	33.3	0.0	10.5
Foundation/ partnership	0.0	0.0	0.0	0.0	0.0	0.0
AHEC affiliated	0.0	0.0	0.0	0.0	0.0	0.0
Research	0.0	0.0	0.0	0.0	25.0	2.6
Unknown	13.3	0.0	0.0	0.0	25.0	7.9

Abbreviation: AHEC, Area Health Education Center.

[a] Sample size varies because of differences in the completion of respective survey questions.

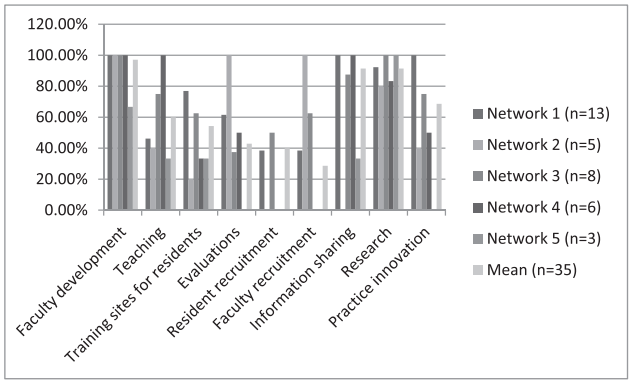

FIGURE 1 **Resource-Sharing Components Among Network Members (n = 35)**

Sample size varies because of the difference in completion of respective survey questions. Responses are not mutually exclusive.

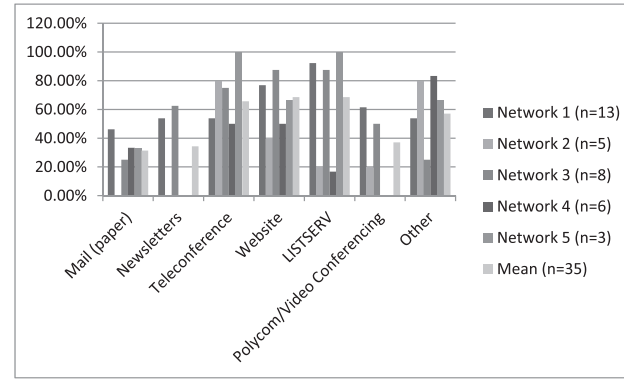

FIGURE 2 **Communication Strategies Among Network Members (n = 35)**

Sample size varies because of the difference in completion of respective survey questions. Responses are not mutually exclusive.

department chair. Respondents also identified committees that were involved in network governance and leadership, including finance, education, legislative, and steering.

Network Funding

Respondents reported that the primary sources of funding for the networks were funding by medical school departments, residency programs within the network, grants, and state sources. The least frequent sources of funding reported were from hospitals and federal sources. There was a significant amount of inconsistency among respondents within the same networks in the reported sources of funding. For example, in one network 50% of respondents reported receiving funding from the state, whereas another 50% reported receiving no state funding.

Sources of grant funding included the Health Resources and Services Administration (HRSA) or other federal sources, as well as grant funding from state and university sources and from private foundations. A total of 2 networks received HRSA grants, 2 networks received other federal grants, 2 networks received university grants, 2 networks received foundation grants, and 1 network received state grants.

Most respondents (84%; 27 of 32) reported concerns about funding in the network. Analysis of the comments showed these concerns most often related to state budget cuts, funding for medical liability coverage, and funding cuts for departments of family medicine.

Resource Sharing and Communication

The reported resources shared within each network are identified in FIGURE 1. The most frequently reported shared resource was faculty development, with 100% (32 of 32) of respondents in 4 networks reporting they shared this component. The least frequently shared resource was resident recruitment.

The communication strategies used in the 5 family medicine residency networks are outlined in FIGURE 2. Communication methods most frequently used were electronic and included websites, LISTSERVs, and teleconferences.

Network Activities

There were differences in the reported frequency of network conferences and retreats by respondents within a given network. Networks reported engaging in political advocacy through the following mechanisms: meeting with state congress, working with state academies of family physicians, organizing legislative committees, and hiring lobbyists. Most respondents (85%; 34 of 40) reported engaging medical students through the following activities: subinternships, student rotations, recruitment fairs, national conferences, student dinners and luncheons, scholarship programs, workshops, and summer research programs. In addition to these activities, networks reported cultivating learners' interest in family medicine through physician shadowing experiences and direct work with medical student family medicine interest groups.

Research in the Networks

All respondents reported that their network engaged in research (n = 35), and most reported their network was currently engaged in 1 project (n = 14) or more research projects (n = 13). One respondent reported his or her network was engaged in more than 5 research projects. Nearly 60% (n = 19 of 32) of respondents reported their network was planning to devote more resources to research in the coming year. The most frequently reported strengths

of research in the networks included good motivation, diverse patient populations, research expertise available at the university, and use of departmental resources. Weaknesses of research included the challenges involved in coordinating multiple sites and limited faculty time.

Strengths and Barriers to Effectiveness

Reported strengths of the networks included shared mission, shared resources, collaboration, and building relationships. Reported tactics for network success included regular meetings and retreats, good communication, and strong leadership. Perceived barriers to success included large geographic areas separating programs, financial constraints, lack of time, competition in the recruitment of candidates to the programs, and conflicting priorities.

Discussion

This is the first study to comprehensively assess residency networks in the United States, comparing their similarities and differences across 6 domains, specifically network administration, funding, resource sharing and communication, research activities, research within the networks, and strengths and barriers to effectiveness.

A recurring theme was the inconsistency of responses by individuals within the same network, suggesting that individuals within the network did not share the same knowledge regarding network activities, sources of funding, and other dimensions being surveyed. This finding points to an important potential area of network development, specifically the importance of communication and transparency. It is possible that infrequent meetings (occurring only annually in many networks) and the reported absence of retreat meetings may contribute to the lack of consistent understanding within the networks. Some of these barriers to communication may also be overcome through the widespread use of websites and electronic communication by the networks.[7]

Residency networks were engaging in active resource sharing, a sign that they were able to successfully navigate the complexities of resource sharing across geographic separation and other possible barriers. It is understandable that networks least often shared resources for resident recruitment, in part because programs within each network may compete for the same candidates and because of the challenges of recruiting US medical school graduates into family medicine.[10,11]

Although it is possible that advocacy and efforts to enhance medical student engagement within the networks could increase the recruitment of medical students into family medicine residencies, the impact of such efforts has not been well studied.[12] Engagement in political advocacy also may assist in addressing legislative issues that confront primary care funding on both state and federal levels.[13]

Research within the residency networks has been highlighted as an important component of the future of family medicine,[14–16] and the networks are a natural fit for patient-oriented outcomes research because the residencies are often spread over large geographic areas and involve diverse patient populations. At the same time, geographic separation was also mentioned as a barrier to network success. Residency networks nationally could benefit from sharing techniques that increase the success of obtaining grant funding. Grants are important in funding research projects and the time of the faculty involved.[17]

The strengths of this study include a high completion rate for the variables on the survey. Limitations include the small sample (5 networks) and the potential that we did not identify some existing networks. This may have resulted in the underreporting of some of the characteristics of the networks and the activities within and across networks.

Conclusions

The residency networks we studied are consistently sharing resources, particularly regarding faculty development, and have been successful at obtaining grants to support their infrastructure. Active involvement in research and engagement of medical students in the networks are successful attributes of these groups.

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