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The Junior Faculty Laboratory: An Innovative Model of Peer Mentoring

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Abstract

Mentoring in academic medicine has been shown to contribute to the success of junior faculty, resulting in increased productivity, career satisfaction, and opportunities for networking. Although traditional dyadic mentoring, involving one senior faculty member and one junior protégé, is the dominant model for mentoring in the academic environment, there is increasing recognition that the sharing of knowledge, skills, and experiences among peers may also contribute to the career development of junior faculty. The authors describe the structure, activities, and outcomes of the Junior Faculty Laboratory (JFL), a self-organized, flexible, and dynamic peer mentoring model within the Duke University Center for the Study of Aging and Human Development. As an innovative mentoring model, JFL is entirely peer-driven and its activities are determined by the real-time needs of members. In contrast to some other peer mentoring models, JFL lacks senior faculty input or a structured curriculum, members are multidisciplinary, meeting times are project-driven rather than preset, and participation in collaborative projects is optional based on the interests and needs of group members. Additionally, JFL was not formed as a substitute for, but as a complement to the dyadic mentoring relationships enjoyed by its members. The model, now in its fifth year, has demonstrated success and sustainability. The authors present the JFL as an innovative, mentoring model that can be reproduced by other junior faculty seeking to foster collegial relationships with peers while simultaneously enhancing their career development.

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Excellent mentorship, which has been associated with career satisfaction, productivity, networking, and preparation for making career decisions,^{1–5} is critical to the development of successful careers for junior faculty in academic medicine. The success of mentor–mentee relationships, however, is highly variable, and many junior faculty report unmet needs for personal and professional development.^{1,2,6} In order to recruit and retain promising junior faculty, medical societies and institutions are increasingly seeking strategies that promote successful mentorship.

Much of the literature on mentorship in academic medicine describes traditional hierarchical models of one-on-one mentoring, whereby a senior faculty member counsels and instructs a junior protégé.^{1–3,5–7} These models, however, face a number of barriers, including mentors' lack of time and appropriate skills, shortage of mentors, mentees' lack of initiative, personality clashes, and problems related to power differentials between mentor and mentee.^{2,7} Given these difficulties, some have suggested other mentoring models, such as peer mentoring.^{8–14}

Peer mentoring recognizes that, along with guidance from senior mentors, collegial working relationships are important for the development of junior faculty.^{8–15} Like traditional dyadic mentoring, relationships among peers are a valuable source of emotional and moral support, positive feedback and constructive criticism, advice on balancing personal and professional responsibilities, and collective expertise for skill development.² Because of shared generational values and the absence of power differentials, peer groups provide a trustworthy, nurturing environment that facilitates learning, role-modeling, practicing new skills, and sharing personal concerns.^{11,13} Additionally, in contrast to traditional dyadic mentoring, which largely presumes a one-way flow of information from one mentor to one learner, peer mentoring involves an interactive exchange of information that promotes creative thinking, problem-solving, and collaboration.

In this article, four original members of the Junior Faculty Laboratory (JFL) describe the peer mentoring group's development, activities, and outcomes. The JFL model differs from previously published models in two key ways. First, unlike groups that were formed in response to a lack of available senior mentors,^{9,13,14} the JFL was developed at an institution with an abundance of senior mentors, and each JFL member was already paired with such a mentor. Second, the JFL differs from other junior faculty development initiatives^{8–10,16} in that the group was formed and operates without input from senior faculty or an externally imposed curriculum; the activities of the group are determined entirely by its members. We discuss how this innovative, peer-mentoring model can be reproduced by other junior faculty seeking to enhance personal and professional development.

Background

The JFL, a peer mentoring group comprised of junior investigators in the Duke Center for the Study of Aging and Human Development, began with a lunch meeting in April 2006. The meeting included five investigators (two PhDs and three MDs) who had held faculty positions for a few months to three years. The group convened in response to informal conversations among the members and after one member had attended a workshop that highlighted the benefits of peer mentoring. During this inaugural meeting, it became clear that we had all benefited from our institution's many faculty development seminars as well as from the guidance of senior mentors; however, our dialogue highlighted a different, but complementary career development need: regular contact with colleagues at similar career stages who were facing or who had successfully navigated challenges common to junior faculty attempting to build academic careers.

By the end of the meeting, we had identified content overlap in our research and a common need to increase collegiality, productivity, and efficiency. Over the next month, we developed the rationale, goals, and specific aims of the JFL. The group's initial goal was to promote the academic success, productivity, and work efficiency of its members through peer-directed learning modules. Although this goal remains central, the JFL has evolved to include the much broader goal of meeting the personal and professional needs of its members in real time.

Toward a New Model of Peer Mentoring

When we established the JFL, each member of the group was already paired with a senior mentor. We envisioned the JFL as complementing these traditional dyadic relationships. Figure 1 displays the traditional mentoring model and the peer mentoring model used by the JFL. In contrast to the dyadic mentoring model, in which information flow is primarily unidirectional, the JFL is characterized by a dynamic interchange of information among the group's members, who also benefit from the surrounding senior mentorship available in the Duke Center for Aging.

An early challenge was to develop a model that was maximally responsive to the needs of JFL members. Initially, we proposed monthly meetings, a formal communication system, invited speakers, and a forum for discussion of works-in-progress. However, within the first year, we recognized the potential benefit of a more dynamic, flexible model in which activities were guided by the members' needs. As a result, we organized the group's activities around specific research projects (either collaborative or individual) or other personal and professional challenges. The goal was to create a model that fit our busy schedules, increased individual and group productivity, and provided opportunities to develop and apply new skills or address other issues relevant to career development.

Unique Qualities and Principal Activities of the Junior Faculty Laboratory

The unique qualities and structure of the JFL are described below, and the principal activities of the group are further detailed in Table 1.

JFL members

Membership in the JFL is determined entirely by its current members and is limited to no more than five participants. There has been very little flux; the four current members were part of the initial group. Over the years, two other junior investigators have joined. One left after a few meetings having decided that he was no longer interested in participating. The other participated for only a short time before leaving the institution. By determining the membership and restricting the group's size, the JFL has maximized the potential for functional collaborations and maintained an environment where members can feel comfortable sharing challenges.

The JFL, which comprises all the junior clinical investigators with a primary appointment in the Division of Geriatrics and an appointment in the Duke Center for Aging, has included MDs and PhDs, men and women, whites and minorities. All members are broadly interested in improving the care of older adults, but their individual research interests are diverse and include such topics as racial disparities, palliative care, transitions of care, and chronic health conditions and disability.

The informal process for adding a new member begins with an existing member identifying a junior clinical investigator (assistant professor) with research interests that overlap with the interests of current members. If all current members agree, we invite the candidate to a JFL meeting, where we lay out the group's structure, activities, and goals and discuss the

overlap in our research interests. We also share our membership expectations, which include participation in collaborative research projects or skills development sessions if they are consistent with individual research interests and needs, participation in the review of individual members' work (grants, manuscripts, etc.), offering informal advice on personal and professional challenges, and respecting members' privacy by not sharing personal or professional information discussed in JFL meetings with others. Because the group has seen so little flux, we have used this process to invite only one junior investigator to join the JFL.

Flexibility in meeting times

The frequency and regularity of meetings is dictated by the group's activities. The group may meet monthly while completing a collaborative research project, but less frequently when members are engaged in grant writing or other time-intensive aspects of individual research projects. JFL members also communicate regularly via e-mail to share information and to critique individual projects and manuscripts. Any member can request a face-to-face meeting, and such requests are usually accommodated within one week. Members who cannot attend scheduled meetings may provide input via e-mail or telephone.

Adaptive curriculum and role of senior faculty

The JFL does not have a predetermined or formal curriculum. The group's activities are determined by its members' needs, which are driven largely by ongoing research projects or other professional challenges. Table 1 lists specific group activities.

The JFL has no regular senior faculty involvement or direct input. We have, however, occasionally invited senior faculty with particular expertise to meet with us when we felt the need to learn specific skills in research analysis or more about some aspect of career development. For example, when the group, led by one member, was conducting a collaborative project to identify mediators of the relationship between race and disability, we invited a senior statistician to discuss the use of *Mplus* (a latent variable modeling program) to estimate indirect effects. As a result, two other JFL members learned how *Mplus* could be used in their individual research projects.

Collaborative research

JFL members have collaborated using resources (datasets, statistical support, etc.) available to individual members from funded research or to faculty in the Duke Center for Aging. Despite different research agendas, we have developed collaborative projects that have served as vehicles for skills development, generated preliminary results for individual research projects and grant proposals, and contributed to members' productivity. For example, the JFL shared a dataset that helped one member predict health services use among older adults discharged from the emergency department while allowing two other members to explore information on disability and markers of frailty. A fourth member was interested in learning how to construct a frailty index and how to use ICD-9 codes. One dataset and two related projects addressed the specific research interests of three members while teaching a fourth a skill set that she will use in a different project.

Because many of the activities of the JFL result from collaborative research, we developed guidelines for participating in these projects. Any member can propose to lead a group project. The other members vet the proposal and decide whether there is adequate interest and resources to pursue the project. Recognizing the diversity of our research interests and varied career development needs, we allow any member to opt out of a project.

Support for individual research projects and career development

The JFL has provided practical support for completing individual research projects and with overall career development, including critiquing grants and manuscripts, sharing successful grant applications, sharing equipment, and brainstorming analytic strategies (Table 1). We have challenged each other's ideas, helped to focus research questions, and expanded the potential scope of individual projects.

General support for career development

The JFL has provided general support and advice to assist members with career development (Table 1). We have shared our experiences on managing clinical responsibilities based on professional needs, discussed pros and cons of accepting invitations to teach or present research, and shared strategies for maximizing the effectiveness of traditional dyadic mentoring relationships.

Shared strategies for work/life balance

The JFL has been a source of collective wisdom regarding managing an academic career while raising children or meeting other personal demands. We have shared strategies for self-care, time management, and balancing work and family life.

Challenges

Although the JFL has been an invaluable source of peer support and has contributed significantly to our productivity and career development, we have faced a number of challenges in establishing and maintaining the group. Attempts to address these challenges have resulted in the current structure of the JFL model.

Finding a model that works

The first challenge was finding a model that worked for all JFL members. As noted above, we initially proposed preset meeting times, a structured curriculum, and pre-specified research projects. We quickly realized that the time commitment required to maintain such a model would not work, as we were already engaged in individual research projects, other career development activities, and clinical commitments. The more flexible model with meeting times, skills development, and research projects focused on the real-time needs of members was a better fit and a more sustainable model for the group.

Time and competing demands

Another challenge has been finding the time to complete collaborative research projects. Although we would like to spend more time on collaborative projects, the structure of the JFL is such that we expect shifts in the number of collaborative projects in favor of using the group to assist with members' needs for individual support and career development.

Different research interests

Early on, the absence of a common research topic was a challenge. Although we are all interested in improving the care of older adults, our individual research interests vary (palliative care, racial disparities, disability, frailty, transitions in care). We have identified projects that cross topic areas (i.e., racial disparity in disability, frailty and health services use) and/or provide an opportunity to develop skills that can be applied to individual research projects (i.e., analytic strategies to estimate indirect effects). Because of our varied individual interests, we also decided to allow members' to opt out of collaborative projects.

Tangible Results

JFL activities have resulted in a number of academic products either directly from collaborations or from individual activities with substantial input from other members. JFL members have completed three collaborative projects, which have resulted in three published manuscripts and three presentations at national meetings. The manuscripts and presentations were secondary data analyses examining the relationships between frailty and health services use,¹⁷ emergency department discharge diagnoses and adverse health outcomes,¹⁸ and chronic health conditions and racial disparity in disability.¹⁹ Separate from JFL-specific collaborations, members have collaborated on two other manuscripts.^{20,21} In aggregate, members have successfully competed for five grants (three career development awards) and published more than 20 articles during their JFL tenure. Many of these articles were related to research proposed in members' career development awards and included input from senior mentors. Although these were not direct products of JFL activities, members routinely shared materials and ideas and provided critiques and feedback on the works in progress. Since the inception of the JFL, three members have been promoted from instructor to assistant professor. All other JFL members were already at the assistant professor level.

Discussion

The JFL is a self-organized, flexible, and dynamic peer-mentoring model designed to meet the evolving career development needs of its members. The group provides emotional and moral support, positive feedback and constructive criticism, opportunities for skill development and research collaboration, and advice on balancing personal and professional responsibilities. The model complements and amplifies the traditional dyadic mentoring relationships enjoyed by its members while creating an environment that takes advantage of the knowledge, skills, experiences, and support of peers. The JFL has demonstrated success through the academic promotion and productivity of its members, and sustainability as the group is now in its fifth year in existence.

Most of the literature on mentoring in academic medicine discusses traditional dyadic mentoring.¹⁻⁷ However, there is increasing recognition of the benefits of peer mentoring, including increased collegiality, decreased professional isolation, and involvement of multiple areas of expertise.^{8-14,16} Although few in number, peer-mentoring groups described in the literature vary widely in their structure, operations, and activities. As an innovative model of peer mentoring, the JFL differs from some of these groups with respect to the lack of senior faculty input, involvement of all JFL members in traditional dyadic mentoring relationships, lack of a structured curriculum, flexibility with meeting times and involvement in group activities, and multidisciplinary peer involvement.

As described in other reports, senior faculty are often heavily involved in peer-mentoring groups, acting as advisors or facilitators and, in some cases, selecting group members and determining activities.^{8-10,16} In contrast, the JFL is entirely peer-driven, without consistent input from senior faculty. This model has the advantage of creating an opportunity for members to openly share their knowledge, skills, and experiences and to learn from others at similar stages in their career. In the absence of senior faculty, group members may also feel more comfortable discussing professional challenges because of shared generational values and practicing or role-modeling skills that may be best acquired in the peer environment (for example, learning from mistakes and practicing management styles).

The impetus for the formation of some peer-mentoring groups is the absence of available senior mentors.^{9,13,14} All JFL members have senior faculty mentors with expertise in their research area and a track record for successfully mentoring junior faculty. The JFL functions

alongside, rather than instead of, traditional dyadic mentoring and amplifies the value of these relationships because information from each senior mentor is shared by his mentee with other JFL members. As a result, the JFL addresses some of the shortcomings of dyadic mentoring, including limited time for senior faculty to mentor more than one junior faculty and the frequent need of junior faculty for advice or expertise from multiple sources.

In some peer-mentoring groups, activities are predetermined based on skills commonly required by academicians (e.g., grant writing), skills needed by the majority of group members (e.g., research methods), or topics addressing issues which frequently arise in the academic environment (e.g., work-life balance).^{8-10,16} The JFL does not have a structured curriculum. The JFL's adaptive curriculum allows members to acquire skills or receive information in response to a specific problem (such as a research project). The new information or skill is then applied immediately, promoting retention and increasing efficiency. This model allows for the flexibility to acquire new information or skills that are needed but not previously anticipated.

Critical to the sustainability of the JFL has been its flexibility with respect to meeting times and project participation. The frequency of meetings is determined by group and individual activities, and members are encouraged to participate only in projects that are relevant to their overall career development. In other groups, meeting times are often preset at fixed intervals and some level of participation in group activities may be required.^{8,9,14,16} The JFL is designed to function within the busy schedules of its members, and the ability to opt out of collaborative projects without fear of repercussion recognizes the varied research interests and competing demands for career development among JFL members. This is especially important, since unlike some other peer-mentoring groups,^{8,9,14} the JFL is multidisciplinary. The diversity of the group fosters creativity and creates a larger pool of knowledge, skills, and experiences to draw upon in addressing personal and professional difficulties.

The JFL has responded to increased interest in peer mentoring at our institution by sharing our experiences with this model. We believe that the JFL can be reproduced by other junior faculty seeking to enhance their career development and foster collegial relationships with peers. Central to the model is responsiveness to the evolving needs of its members. Therefore, the structure and activities of "JFL-like" groups will likely differ from institution to institution and from group to group. However, the process of establishing these groups is reproducible and involves: (1) identifying peers with similar needs and broad interest; (2) developing an overall goal for the group based on common needs; (3) setting ground rules (for example, frequency of meetings, size of membership, expectations of collaboration, acceptability of opting out); (4) defining group activities; and (5) identifying resources to support group activities.

Although we have described the JFL as a model to promote collaboration and career development among clinical investigators, we believe that the model is also applicable to other career paths in academic medicine, such as clinician educators, and that the process of establishing JFL-like groups is similar. The group's activities will differ based on the goals, interests, and specific needs of its members for career development.

In addition to its flexibility and responsiveness to the needs of its members, several other factors have contributed to the success of the JFL model and should be considered by others interested in starting JFL-like groups at their institution. These include the availability of resources to support research and career development (such as statistical support, data, meeting space) through individual research awards or the institution, the research orientation of the institution (which in our case encourages faculty to pursue their research interests and values research endeavors), and the support of leadership who acknowledge the potential

added value of an alternative to traditional dyadic mentoring and respect the group's preferences to create a model of peer-mentoring that does not include consistent input from senior faculty. Also, the success of the JFL model depends on the availability of a critical number of investigators with similar broad interests, research training, grant- or institution-supported dedicated time for research endeavors and career development, and a sense of collaboration.

We have received funding from the Brookdale Foundation to promote dissemination of the JFL model and will use a portion of these funds to support collaborative research endeavors of nascent JFL-like groups. We plan to catalyze these spin-off groups by identifying and sharing our experiences with a junior clinical investigator and then encouraging him or her to approach a group of peers and assess their interest in forming a peer mentoring group. Once a new group is formed, we will share details of our goals and activities and suggest areas for collaboration.

Most reports of peer mentoring describe the formation of the group and activities over the first one to two years.^{8,9,14,16} We have described activities and outcomes of the JFL over a four-year period. In this time, JFL members have realized both the immediate benefits of increased peer interaction (such as increased collegiality) and the long-term tangible outcomes (such as manuscripts and grants) that come from completed collaborations and peer support devoted to individual career development. Our experience suggests that the JFL model, which is uniquely structured to be maximally responsive to the needs of its members, can facilitate research collaboration, skill-development, and increased productivity while fostering collegial relationships among junior faculty. While we have, in this article, described our own experiences, future research might more formally assess outcomes with comparison to a control group or groups participating in other mentoring models. We plan to continue the general structure of the group, recognizing that activities will change with the evolving research agendas and career trajectories of JFL members.

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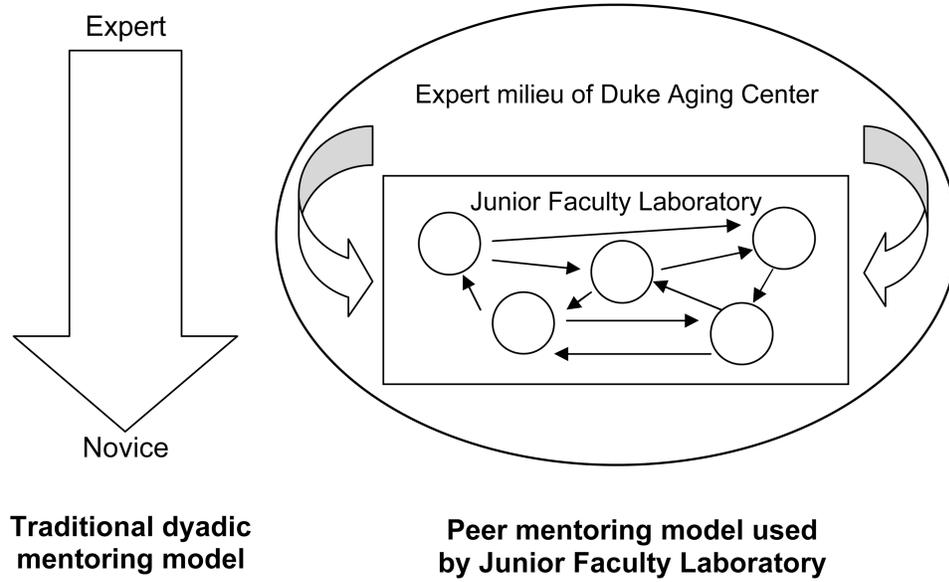


Figure 1. A comparison of the flow of Information in the traditional dyadic mentoring model and that of the Junior Faculty Laboratory, a peer-mentoring group formed in 2006 at Duke University Medical Center.