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The Role of Regional Conferences in Research Resident Career Development: The California Psychiatry Research Resident Retreat

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Introduction

Our ability to study and understand the fundamental basis of neuropsychiatric disease has blossomed in the last decade, due to genetic, neuroimaging, and other methodological and scientific advances [1,2]. In order for the field to keep pace with new innovations and translate new discoveries, there needs to be an influx of young physician-scientists into psychiatry [3]. There have been several proposed training approaches designed to maximize the success of physician-scientists in psychiatry, primarily focusing on the structure of research-oriented residency programs [4–7]. However, a crucial and complementary piece to research training success is the availability of robust mentorship opportunities [8–10].

Previous studies have shown that academically-oriented clinicians with strong mentorship report greater career satisfaction, obtain more research grants, are promoted more quickly, and report greater academic self-efficacy than those with insufficient mentorship [11]. Cross-institutional mentoring and career development opportunities are limited, despite evidence of their effectiveness [8]. One way to provide this opportunity is to create regional, cross-institutional events to provide residents with access to a wide-range of mentors from outside institutions. These events also provide a platform for residents to begin to build peer-networks and learn from each other's experiences. Unlike large national or international research conferences, resident-centered regional conferences are smaller in scale, with a focus only on research resident career development, thus providing an ideal environment for mentorship and networking. Here we discuss our experience with the first two biennial California Psychiatry Research Resident Retreats (CPRRRs), funded as part of a National Institute of Mental Health (NIMH) R25 education grant to the University of California, San Francisco (UCSF). We define research residents as any resident engaging in research activity with the intent of pursuing, or possibly pursuing, an academic research career.

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Methods

Funding Mechanism and Ethics Approval

A National Institutes of Health (NIH) R25 grant is a research education program grant designed "For support to develop and/or implement a program as it relates to a category in one or more of the areas of education, information, training, technical assistance, coordination, or evaluation" [12]. In line with this vision, UCSF has had an NIMH R25, Training the Next Generation of Mental Health Researchers, for the past 15 years to support the UCSF Department of Psychiatry Resident Research Training Program infrastructure [7]. The overarching aims of this R25 are: 1) To identify and promote career development of residents interested in pursuing research careers, 2) To provide clinical and research education and training tailored to each resident's individual career goals and prior research experience, and 3) To provide hands-on research opportunities during the psychiatry residency and child fellowship. The CPRRRs, which are funded through the UCSF R25, were designed to target the first two goals by providing career development and research education opportunities to psychiatry research residents throughout California. Travel, lodging, and conference expenses for all residents were covered by the R25. As all data was anonymous, with no personal identifiers attached, this work was deemed exempt by the UCSF Committee on Human Research based on their assessment that our research participants did not qualify as "human subjects".

Conference Format and Data Gathering

The CPRRRs are biennial and have been held twice, the first in San Francisco in 2013 and the second in Santa Barbara in 2015. The location rotates between Northern California and Southern California to increase access for junior residents who may have limited availability due to clinical responsibilities. Interested residents were recruited through email contact between conference coordinators and research education representatives at all California psychiatry training programs. The conferences contain five components: 1) Resident "flash talks", 2) Research ethics debates, 3) Group mentoring sessions with faculty, 4) A keynote talk by an established researcher, and 5) Informal resident networking events. General demographic information was gathered about each participant (Table S1). At the end of each conference, residents were asked to complete an anonymous survey on their overall satisfaction and on each of the five components. Ten of the thirteen total questions were scored on five-point Likert scales that ranged from "not at all useful or satisfied" to "very useful or satisfied". The three remaining questions were free text. Eight of the questions requiring a numeric response were included in our final statistical analysis (see below); two were excluded because of a lack of relevance to the topic of this study.

Flash Talks

Each resident attending the conference was offered the opportunity to give a presentation about their research interests as a "flash talk". At large scientific conferences, often only senior or established researchers have the opportunity to present their work in a talk. Such talks are typically thirty minutes to an hour in duration and the goal is usually to present new data. In contrast, our focus for the five minute "flash talks" was on helping the residents develop clear and concise communication of ideas and on practicing fielding questions about

their research projects. The talks also served to quickly orient residents to the research interests of their peers from other institutions, allowing for more efficient networking. Two minutes were allowed for questions following each talk. All attending residents were offered the opportunity to present; third year residents and above were strongly encouraged but were not required to do so.

Research Ethics Debates

Clinician researchers inevitably encounter difficult ethical dilemmas where there is strong incentive to push the bounds of ethical decision making or where there is no clear ethically correct decision. There has been an increasing recognition of ethical breaches in the scientific community that have misled fields of research and betrayed public trust [13,14]. Therefore, it is essential that trainees learn to think through complicated ethical dilemmas that they are likely to encounter. We used real-life situations that the CPRRR organizers have encountered as debate topics (Table 1). Two debate topics were presented at each CPRRR, and all trainees participated in discussing and arguing one of the two topics. The trainees were randomly divided into four teams, two for each topic, and were assigned the task of arguing for or against each statement, debate style. The random assignments were intended to encourage cross-program interactions, thus increasing networking among residents from different sites. After approximately 15 minutes of team discussion, there was a public debate where each side had five minutes to present their initial position and then two minutes for rebuttal. Those trainees not participating in a particular debate topic voted on the winner.

Mentoring Sessions

Navigating a combined clinical and research career can be a daunting and complex endeavor. Good mentorship is essential in learning how to best approach challenging professional and personal decisions and balance competing demands. Research residents have a variety of interests, questions, and concerns related to mentoring, often based on their level of prior research experience and on their current year in clinical training. Therefore, before the retreat, residents were surveyed about their interest on several possible mentoring topics and were assigned to mentoring groups accordingly. Breakout groups were lead by faculty members from multiple California institutions that could speak to the specific topic of interest. The topics of each of the mentoring sessions for the CPRRRs are listed in Table 1.

Keynote Talk

It is important for research resident trainees to having accomplished mentors they can identify who offer examples of career success. Therefore, at each CPRRR, we recruited a senior research psychiatrist to give a keynote talk to the residents over lunch. The goal of the keynote talk was to have the speaker describe his/her career path, including challenges, failures, and ultimate successes, as well as to present a summary of his/her research.

Resident Networking

Effective peer-networking is a vital skill to develop for a successful academic research career. There is evidence suggesting that cross-institutional networks (e.g. professional associations) may have greater importance than within-institution relationships [8]. We

anticipated that many of the residents present at the CPRRRs would have intersecting research interests with their peers at other institutions. Thus, the CPRRRs were designed to allow research residents to begin to foster professional relationships. Several types of networking opportunities were scheduled to foster these experiences, including multiple coffee breaks throughout the day, a long lunch period aimed at allowing time for networking, a CPRRR-wide dinner the night before the conference, and random assignment of residents to break-out groups to promote new interactions.

Statistical Analysis

A two-tailed t-test was used to assess the difference in means for attendee feedback scores between 2013 and 2015. Effect size (Cohen's d) was calculated to index the size of the difference between the means. Based on a distribution of scores heavily skewed towards the positive end of the 5-part Likert scale, we used the Pearson's chi-squared test to compare the proportion of scores between years that were > 4/5 ("very satisfied or useful") with those that were 4. Fisher's Exact p-value was calculated to identify those with significant improvement. Bonferroni correction for multiple comparisons was not performed, as it would have been overly conservative for early-stage work such as this.

Results

Demographics

The number of residents that attended the CPRRR increased from 32 (from 5 programs) to 33 (from 6 programs) from 2013 to 2015. In 2013, 40% of attendees were female, while 48% were female in 2015. The majority of residents were in either their PGY 2 or 3 years at both CPRRRs, with 53.1% having a PhD in 2013 and 39.4% with PhDs in 2015. Although most participating residents were enrolled in residency training programs that offered a research track, several residents who had an interest in research but did not have a formal research track at their program also attended. Full demographics are summarized in Table S1.

Resident Satisfaction

Twenty-four of the 32 residents completed the survey in 2013, while 32 of the 33 residents completed it in 2015. The results are summarized in Table 2. Mean scores for all components of the conference, with the exception of the ethics debate both years and the mentoring session in 2013, were > 4. Mean scores for all conference components increased from 2013 to 2015. This increase was statistically significant for the mentoring sessions (d = 0.97, $t = 3.30$, $p = 0.002$) and the ethics debates (d = 0.66, $t = 2.39$, $p = 0.02$), with mean scores for all other components except for the keynote speaker showing a non-significant, but moderate increase ($d > 0.3$). There was a significant increase in the proportion of scores > 4 from 2013 to 2015 (see Table 2) for both mentoring sessions and networking with residents ($\chi^2 = 5.04$, $p = 0.03$; $\chi^2 = 7.02$, $p = 0.01$).

Discussion

The biennial CPRRRs were very well received by research residents, with almost all components receiving mean scores > 4/5 both years. Overall satisfaction and likelihood of recommending the conference to others neared maximum possible scores in 2015 (4.9; 5.0, respectively). Networking with other residents and faculty were also highly scored both years, suggesting that these experiences may have played a critical role to high overall satisfaction. Feedback we collected from attendees supports this assertion and suggests the residents desire even more time for networking, which is something we will attempt to address at future conferences with more built-in social events. These results are reassuring given that improved peer and mentor networking for research residents outside of their home institutions was one of the main goals of the CPRRRs and its importance to career development is significant [8].

The lowest rated component both years was the research ethics debate (mean scores of 3.2 and 3.8), although there was a significant increase in overall satisfaction from 2013 to 2015. We decided to include this debate-style activity, in line with new NIH education grant requirements [15], because of the increasing complexity of ethical decision-making in modern biomedical research. In the debate's current format, residents are often forced to argue a viewpoint that they may or may not agree with because they are randomly assigned to teams at the beginning. It was our hope that this experience would broaden their outlook on complicated research ethics issues. However, the interactive format lends itself to being dominated by the more extroverted participants comfortable with public speaking, which may contribute to our observed bimodal score pattern in satisfaction. The significant improvement in scores that we observed from 2013 to 2015 may be due to better time management of the debate and broadening the scope of debate topics (Table 1). We will consider broadening the post-debate discussion into a more formal, structured, ethics didactic to appeal to a wider range of resident learning styles.

Mentoring sessions was the other component that was rated somewhat lower than other sessions in 2013, with a mean score of 3.8. However there was notable significant improvement to 4.5 in 2015 ($p = 0.002$). The proportion of very high scores also significantly improved from 0.3 in 2013 to 0.61 in 2015 ($\chi^2 = 5.04$, $p = 0.03$). In response to 2013 feedback, we broadened the topics slightly to include mentoring on research funding and on balancing clinical and research duties (Table 1). These minor changes likely contributed to the improved resident satisfaction, although other factors such as improved time management and having mentors from a greater diversity of institutions may have played a role as well. Based on 2015 feedback, we will attempt to improve satisfaction further by providing time for residents to attend more than one session. With broad cross-institutional mentorship being one of the primary goals of the CPRRRs, we believe that dedicating additional time to this event is consistent with our mission. Overall, the feedback from the first two CPRRRs suggest that these conferences are valued by the participants and that we have had success in meeting our primary goals of creating networking and mentorship opportunities for psychiatry residents who are interested in research careers.

We identify two major limitations to our study. First, we do not have access to a matched comparison group of research residents who did not have a conference experience, nor do we yet have information about the impact of the CPRRRs on the career trajectory of the participants. Therefore, we are unable to prospectively quantify the effect of CPRRRs on resident career trajectory or rule-out the possibility that the CPRRR only provides an enriching learning experience without long-term career impact. One way we may address this issue in the future is to retrospectively assess the success of those research residents who participated in the CPRRRs compared with those who decided not to attend (acknowledging strong participation bias). Previous studies that have attempted to assess the effectiveness of regional career development conferences do not have control groups and simply report the career trajectory of the conference participants, making the results hard to interpret [16,17]. Another limitation is our inability to link the demographic information with the resident feedback because of the anonymous nature of the feedback. This prevents us from doing subgroup analysis and potentially identifying specific needs of subpopulations, such as those individuals with little research background or those underrepresented in academic medicine. Given the relatively small number of attendees at each CPRRR, we will have to carefully consider the benefits of asking for demographic data with feedback versus the risk of potentially compromising the anonymity (and reliability) of the feedback at future conferences.

Given the overwhelmingly positive response to the first two CPRRRs, we are working to make the CPRRR an annual event, as this was one of the most consistent requests we received from residents and it would serve to reinforce new relationships and collaborations. The CPRRR in its current structure was built into our current R25, but this mechanism does not have sufficient budget to support yearly meetings. Therefore, creative approaches are required. One approach would be to try to reduce costs by attaching the meeting to a larger, annual event, such as the APA did with the Colloquium [16]. Although, this might be difficult to do with the CPRRRs given the diversity of residents' research interests and the fact that such conferences are held in California only periodically, we are pursuing this as an option. Alternative funding sources are another possibility, including private, non-profit foundations, and philanthropy. Given mounting evidence that industry financing can impart unconscious cognitive biases in medical decision-making, seeking funding from industry is not an ideal route and one we have chosen not to pursue [18,19].

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

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Implications for Educators

- Regional career-development conferences may be an effective mechanism to enhance research mentorship and networking for psychiatry research residents outside of their own institutions.

- When planning a regional research conference, organizers should try to accommodate to the diversity of needs of the attendees and their different levels of research proficiency.

- Iterative changes based on post-conference feedback may be effective in improving satisfaction on various components of regional conferences.

Table 1

Topics for Research Ethics Debates and Mentoring Session

	Research Ethics Debate Questions		Mentoring Session Topics	
2013	1.	Is it ethical to include a senior faculty member from your department as an author on your paper if he/she hasn't contributed substantially to the research but it would benefit you politically to do so?	1.	How to function as a teacher, manager, and researcher
			2.	Planning ahead for your career in academic medicine
			3.	Where to go after residency
			4.	How to get proper mentorship
	2.	Is it ethical for a senior faculty member or your mentor to be the principal investigator of a grant for you if they will not be involved in the project in order to increase the chances of funding?	5.	Work-life balance
2015	1.	Is it ethical to use research-generated data to guide clinical care?	1.	How do I fund my career?
			2.	How do I become a good clinician and a good researcher?
	2.	Is clinical recruitment sufficient contribution to warrant authorship?	3.	Where to go after residency
			4.	What makes a good mentor?
			5.	Work-life balance

Table 2

Resident Satisfaction with Different Components of the CPRRRs

Question	Mean Score		t-statistic	p-value	Effect Size (Cohen's d)	Proportion of Scores > 4		χ^2	Fisher's Exact p-value
	2013	2015				2013	2015		
Overall satisfaction	4.5	4.9	1.96	0.08	0.67	0.70	0.90	3.05	0.13
Flash-talks	4.3	4.6	1.59	0.12	0.46	0.43	0.59	1.36	0.28
Mentoring sessions	3.8	4.6	3.30	0.002[*]	0.97	0.30	0.61	5.04	0.03[*]
Ethics debate	3.2	3.8	2.39	0.02[*]	0.66	0.13	0.23	0.80	0.49
Keynote speaker	4.4	4.6	0.25	0.81	0.07	0.52	0.58	0.19	0.78
Networking with faculty	4.5	4.7	1.36	0.30	0.37	0.65	0.81	1.64	0.23
Networking with residents	4.6	4.9	2.01	0.24	0.57	0.65	0.94	7.02	0.01[*]
Recommend to other residents	4.8	5.0	2.30	0.19	0.70	0.85	0.97	2.44	0.29

[*]
$p < 0.05$